

# YEAR 9 KNOWLEDGE ORGANISERS



# Knowledge Organisers – what are they?

- Knowledge Organisers are a summary of key facts and essential knowledge that students need to be aware of, such as important vocabulary, terms, dates, etc.
- The format and content will vary from subject to subject, topic to topic, but will give students and parents/carers a really good starting point for what needs to be known and understood for that particular topic/unit
- Knowledge organisers may be used in lessons but are primarily for recall and revision purposes, giving students the opportunity to remember key knowledge and have ideas about how to revise that content
- Slide 3 gives you some ideas about how you can use Knowledge Organisers with your child or how they might use them alone or in groups to study/revise

# What You Will Find Here

- You will find Knowledge Organisers from the start of term, starting with Autumn 1 – some may span beyond this and all will be added to throughout the year so that, by the end of the year, you will have knowledge organisers for the whole year. The Knowledge Organisers are listed chronologically, in the order the units will be taught to students.
- There are ideas on the next slide as to how students might use Knowledge Organisers to revise or for general recall/reinforcement of learning – these are not extensive but will hopefully provide you with some ideas about how you can work with your child or encourage them to study alone or with peers.
- There is a contents page by subject for each year group – please note two key things;
  - **Some subjects have purchased knowledge organisers as part of their curriculum investment and therefore cannot publish them on our website –they will be available to students via their books or in lessons**
  - **Some subjects may publish Knowledge Organisers for a particular half term or topic but these may span a greater period of time or be revisited later in the academic year**

## How to use a Knowledge Organiser – Ideas for personal study and retrieval

	Key Words – spelling and definitions	Mind Maps	Flash Cards	Quiz Questions	Look, Cover, Write, Check	True or False?	Crossword Puzzles	Fill in the Blanks
Step 1	Write down key words and their definitions	Create a mind map using the key information from the topic – don't look at your knowledge organiser to do this	Create flashcards for each key term, word, idea or piece of information – condense the information down	Create questions to quiz yourself on using the information in the knowledge organiser	Study a specific part of your knowledge organiser	Write a set of True/False statements from the information on your knowledge organiser	Pick key words from your knowledge organiser and put them into a crossword puzzle	Write fill-in-the-blank sentences using information from your knowledge organiser
Step 2	Practise spelling the key words correctly – write them out three times then check and use red pen to correct any mistakes	Check your knowledge organiser to see if you have missed anything and add it to your mind map	Write answers or supportive information on the other side of the flashcard	Write down the answers to your questions or get someone to quiz you on them	Turn the knowledge organiser over and write down everything you can remember	Get someone to test you on the statements	Create clues for each word and write them beneath a blank copy of your puzzle	Test yourself or a friend
Step 3	Get someone to test you on the spellings and definitions of the key words	Highlight the most important bits of information or the ones you are not so confident with	Get someone to test you on the knowledge	Flip it – choose an answer and write a question to go with it!	Check back and see if you got anything wrong or missed anything – use your red pen to add/correct	Correct any mistakes in red pen	Test a friend!	Correct mistakes in red pen – include spelling errors

## And some other ideas...

1. Summary writing – write a summary paragraph using the key points from your knowledge organiser, e.g. 'Summarise the causes and effects of Coastal Erosion'
2. Timelines – create timelines with pictures and key dates, e.g. 'create a timeline of major events in the Korean War'
3. Comparison Tables – create a table to compare and contrast different items from your knowledge organiser, e.g. 'compare how Passover and Easter are celebrated'
4. Essay prompts – create essay titles using the key knowledge from your knowledge organiser (and then bullet point the key information to answer the question, e.g. 'Discuss the best method of recruitment')
5. Discussion questions – develop questions to spark discussion based on the key points in your knowledge organiser, e.g. 'Why is it important to have a balanced diet?'
6. Research – choose topics from your knowledge organiser and conduct further research to expand on them, e.g. 'Research more about safe data management and GDPR'



# Contents Page

- 6-11: English
- 12-24: Maths
- 25-30: Science
- 31-34: PE
- 35-39: Art
- 40-43: Business
- 44-48: Design and Technology
- 49: Drama (to be added)
- 50: Food and Nutrition (to be added)
- 51-54: French
- Geography (not published due to copyright)
- 55-60: History
- 61-65: IT (Computer Science)
- 66: Music (to be added)
- 67-69: Religious Philosophy



In this unit you will develop an understanding of John Steinbeck's classic 'Of Mice and Men'. You will read the full text in class and will develop how your formal analytical writing as we push you towards using TEALEAC paragraphs.

## Year 9 English: Of Mice and Men

### Key Vocabulary

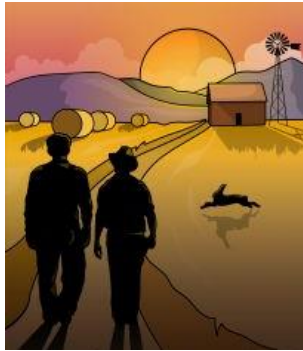
Protagonists  
Colloquial  
language  
Social Status  
Microcosm  
Vulnerable  
Symbolism  
Segregation  
Prejudice  
Discrimination  
Disempowered  
Marginalised  
Circular narrative

Remember to use the vocabulary and add it to your progress tree when you have defined it!

### Context

Context refers to the **life and influences of a time period**. Understanding what **effect this has on the text** and its audience is crucial to understanding.

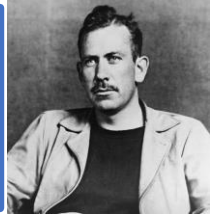
Consider: **The Great Depression. The American Dream. Transient Lifestyles. Migrant Workers.**



### TEALEAC

Students will be pushed to move on from using word explosions to write TEAC paragraphs but to link various quotations within the same analytical paragraph to form TEALEAC paragraphs. Technique, Evidence, Analysis, Link, Evidence, Analysis, Compare.

Born: 7<sup>th</sup> Feb 1902  
Died: 20<sup>th</sup> Dec 1968  
American writer who won the 1962 Nobel Prize in Literature



**Word explosions** will help you to learn how to structure and develop your analysis of texts. There is still a place for them in Y9 – many students still use them to support the structure of their TEAC paragraphs. Just like stabilisers on a bike, you should push to move away from them when you are confident to do so.

#### **Technique:**

Make a point which shows your understanding and support with reference to a technique used by the writer.

**This is what a word explosion outline will look like**

**Evidence** – Your quote goes here to support your point.

**Analysis: initially this means...**

Outline what the quotation suggests.

**Analysis:** Explore the effect of the language. Explain the impact and how the writer's choices affect the audience and their understanding.

**Stretch and challenge:**  
**context**

Add in contextual factors which impact on the interpretation of the text. Explore how they can influence both the writer and the audience.

**Analysis:** focus on key words using subject terminology  
'the word \_\_\_\_\_ suggests'

## Character

**Lennie Small**

A huge man but with a child like understanding of the world. He has a selective, short-term memory and always gets in trouble. He looks up to George as a father figure and takes pleasure in hearing of the dream ranch and the rabbits they will have.

**George Milton**

He is the opposite of Lennie both in size and intelligence. He is no saintly hero and, although he loves Lennie, he becomes easily frustrated and annoyed with him. He protects Lennie and kills him to spare him from Curley's torture.

**Slim**

Slim is the well respected and admired ranch foreman. He is a wise figure with 'god-like' eyes whose opinions and decisions the men respect. He decides to shoot Candy's dog.

**Candy**

He is the crippled old 'swamper'. After his dog is shot, he makes George and Lennie's dream become more of a reality by offering them all his savings.

**Crooks**

Crooks in the 'negro stable buck' who is segregated from the white workers because of his skin colour and lives close to the animals. At first, he is bitter and cynical when Lennie tells him about the dream but finds himself being drawn into it. His hope for the future is destroyed when Curley's wife crushes his dignity and threatens his life.

**Curley's Wife**

She is the only woman on the ranch and her lack of worth in the eyes of the men is suggested by the fact she is not named; she is just a possession of her husband. She is lonely but the men see her a negative light and think 'she got the eye'. Sadly, her dream of becoming a movie star ends with her death at Lennie's hands.

**Curley**

Curley is a violent bully and the son of the Boss. His real reason for hunting down Lennie is in revenge for the humiliation of having his hand crushed, rather than for the death of his wife.

**Carlson**

Carlson shoots Candy's dog and is a representative figure of the tough, unfeeling men on the ranch.

## Context

**The Wall Street Crash** happened in 1929 when the prices on the New York Stock Exchange collapsed. Many people blamed the banks for this disaster because they risked people's deposits on the Stock Market. The consequences of this were difficult to accept because The Roaring Twenties were a boom time of prosperity and the feeling that life was improving again after WW1.

America was plunged into **The Great Depression** after the stock market crashed. By winter 1932, the country was in the greatest economic depression of its history with over 13 million people unemployed and many people starving and homeless.

**The Dust Bowl** occurred when a series of dust storms in 1930s America caused major damage to agricultural land in some states. This meant much of the land could not be farmed and as a result farmers lost their livelihoods and were forced into an itinerant lifestyle.

**The American Dream** was the dream of a life that could be better, richer and more fulfilling for everyone. People dreamed of having their own land and being independent after the effects of the Wall Street Crash. America had always been seen as the 'land of opportunity' where any dream could be achieved through hard work.

As a result of the economic and agricultural problems, many farmers migrated to California as people thought it provided a better chance of employment. George and Lennie are examples of these **migrant workers** who move from ranch to ranch looking for work and having to accept low wages. This was a very insecure and unstable way of life.

# Year 9: Of Mice and Men

## Vocabulary

Mood	Stereotype	Isolation	Misogyny
Atmosphere	American Dream	Personification	Segregation
Novella	Itinerant	Hostility	Pessimistic
Symbolism	Derogatory	Futile	



## Themes

Loneliness	Dreams	Natural world
Prejudice	Friendship	Violence
Survival of the fittest	Marginalisation	Victims
The weak and the strong	Animals	Justice



This is a non-fiction unit, designed to get you thinking about how you can use voice to create passionate and focused non-fiction pieces. You will explore a variety of models in class with the goal of being able to learn from them in order to showcase progress in your own writing of non-fiction.

## Year 9 English: Non-Fiction

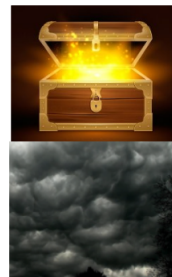
In this unit, we will teach you how to use this non-fiction structure. It has 5 key elements:

- **Image** – open with an image to best reflect your opinion. This is designed to allow you to use imagery by creating a metaphor to set up your viewpoint on the issue you are exploring
- **You** – here, you share your own passion for the issue.
- **Wider impact** – ask the question ... ‘how did society create this issue?’
- **Solution** – consider the next steps and progress your viewpoint into what you want to happen next.
- **Image** – return to the image once again but, having produced a progressive argument, this image should have evolved.

### Conclusion – link back to image

Here, link back to your image from the introduction. What would you like the image to now be?

- *Treasure as a metaphor for winning. Something desirable, precious and rare. Leave your piece with an image of children winning where their success can be rewarded with the metaphorical ‘treasure’ you set out in paragraph one.*
- *A black cloud that looms over sport when winning at all cost takes over. Contrast the image with bright skies and sunshine overhead by painting an image of joy and fun if sports removes its winning at all costs mentality.*



### Introduction - image

Here, create an image that best reflects your opinion. For example:

- *Treasure as a metaphor for winning. Something desirable, precious and rare.*
- *A black cloud that looms over sport when winning at all cost takes over.*

### You

Here, add some of the key reasons why **YOU** agree or disagree with the statement. This is your place to speak from the heart, with passion about why this issue affects **YOU**.

Tip – if you personally are not passionate about sport, write as if you are somebody who is!

Statement:

**‘All sport should be fun, fair and open to everyone. These days, sport seems to be more about money, corruption and winning at any cost.’**

I will be writing **FOR** (you agree) **AGAINST** (you disagree)

### Solution

Now, move your argument towards a solution. What are the next steps?

‘I call on all of us to ...’  
‘I urge parents to ...’  
‘It is imperative we all strive to ...’  
‘We must come together as one to ...’

### Wider Impact

Here is where you develop your viewpoint to consider who else is impacted beyond you.

Children / teenagers / school children / parents / society / children around the world / sport in general / the next generation of elite talent

Use this space to explore how this issue affects others.

A range of punctuation . , ? ! ;

...

Higher order vocabulary

Make sure that, throughout the unit, you are demonstrating these **core skills**:

Paragraphs – at least 5,  
including a varied lengths

Non-Fiction Methods  
(DAFORREST)

A range of sentence structures –  
varied sentence openings and a  
variety of lengths of sentences

Most importantly  
... A voice.  
A passionate, clear  
opinion expressed  
through a strong  
voice.





### 'War Photographer' by Carol Ann Duffy

#### Key words:

Conflict  
Morality  
Bravery  
Perseverance  
Humility

### 'Out of the Blue' by Simon Armitage

#### Key words:

Idiom  
Poetic 'voice'  
Appalling  
Flagging  
Commemorative

### 'Storm on the Island' by Seamus Heaney

#### Key words:

The Troubles  
Omnipotent  
Isolation  
Nature

### 'Remains' by Simon Armitage

#### Key words:

Chaos, camaraderie,  
desolation, apocalyptic,  
relationship,  
hostility, diabolical

### 'Flag' by John Agard

#### Key words:

Symbolism, Identity,  
Colonialism, Patriotism  
Conflict, Conscience

## Year 9 English: Conflict Poetry

### Disciplinary knowledge

Here you can find the key skills you will be working on in this unit –

- Word explosions (pictured below)
- Moving around to the close analysis box
- Attempting to add a comment on context
- Using the TEA paragraph structure
- Using the TEAC paragraph structure
- Using the TEALEAC paragraph structure where you introduce comparison.

### Episode 1 'War Photographer'

#### Key Skills:

- Learning how to annotate a poem
- Drawing out big ideas related to the poem
- Exploring caesura
- Exploring the stanza scheme
- Using word explosions

### Episode 2 'Remains'

#### Key Skills:

- Learning how to annotate a poem - consolidation
- Drawing out big ideas related to the poem – consolidation
- Using word explosions
- Moving around to the close analysis section of the word ex.
- Writing using the TEA structure

### Episode 3 'Out of the Blue'

#### Key Skills:

- Responding emotionally to a poem
- Learning how to explore context of a poem
- Using emotional reaction of a poem to craft a poem
- Using contextual knowledge to inform the crafting of a poem

### Episode 4 'Flag'

#### Key Skills:

- Learning how to explore context of a poem
- Annotating a poem to draw links with context
- Exploring symbolism
- Apply symbolism through crafting of own poem related to conflict

### Episode 5 'Storm on the Island'

#### Key Skills:

- Exploring the context of the poem
- Using word explosions
- Moving round to the context section of the word exp.
- Using the TEAC structure

### Episode 6 Comparison

#### Key Skills:

- Revising the poems 'Remains' and 'War Photographer'
- Introducing TEALEAC and how to plan for it
- Using the TEALEAC structure

#### Technique:

Duffy presents war through ...

juxtaposition of stress and comfort  
semantic field of misery  
metaphor (imagery of nature)  
metaphor

How is the theme of war presented in 'War Photographer'?

Analytical Phrases that are really useful for analysis:

Shows suggests implies emphasises reflects  
captures conveys juxtaposes

#### Evidence:

"Spoils of suffering" – metaphor  
"all flesh is grass" – metaphor (imagery of nature)  
"pain"/"suffering"/"agonies"/"cries" – semantic field of misery  
"tears between the bath and pre-lunch beers"  
juxtaposition of stress and comfort

Analysis: here you note what the quote initially makes you think ...

This quotation shows ... / This quotation suggests ... / This quotation implies ...

This also links to the quotation "....." because ... / We could link this idea to "....." because ...

Analysis: here you specifically comment on what it makes the reader imagine/view/feel  
Duffy is deliberately showcasing to the reader ...

Duffy masterfully displays...

Duffy forces the reader to think ...

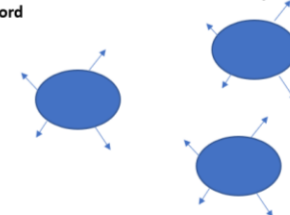
#### Stretch and challenge: context

Here, share some of your knowledge about context – Carol Ann Duffy is friends with a real war photographer

The nature of being a war photographer

Morality – exploring the moral dilemma around capturing these kinds of images

Analysis: here you focus on single words. Write the words and draw multiple arrows around it with ideas related to that key word





This is a creative writing unit, designed to get you thinking about how writers develop a sense of place, how they create atmosphere, how they structure a text for effect and how they control the tension. We will use parts of Susan Hill's 'The Woman in Black' to emulate the skills and style of a writer.

## Year 9 English: Creative Writing

### Piece 1: Creating Place and Atmosphere

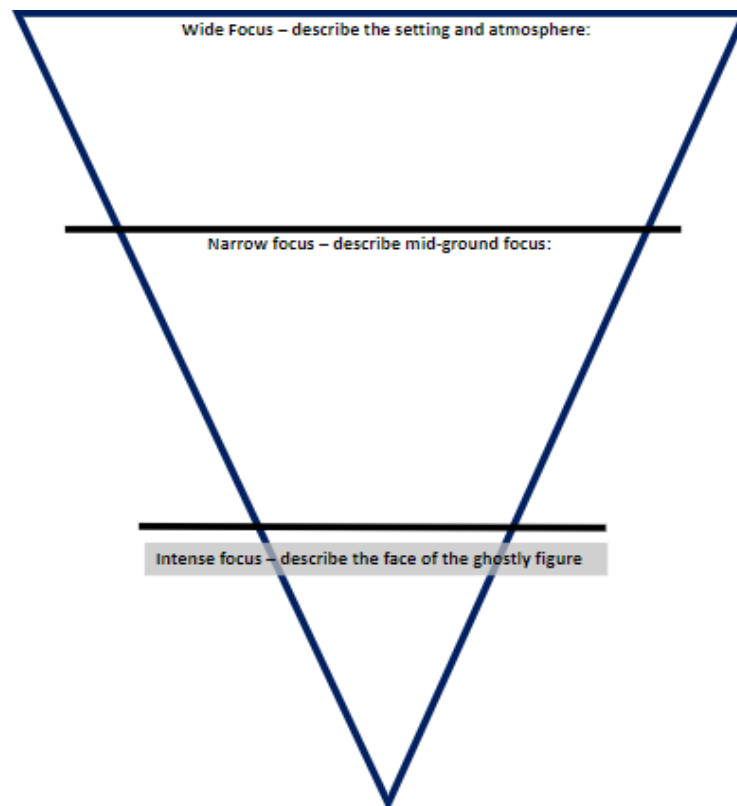
Use adjectives to make the fog seem like its own character in the story.

Ensure that there are logical, developed patterns of words across the writing.

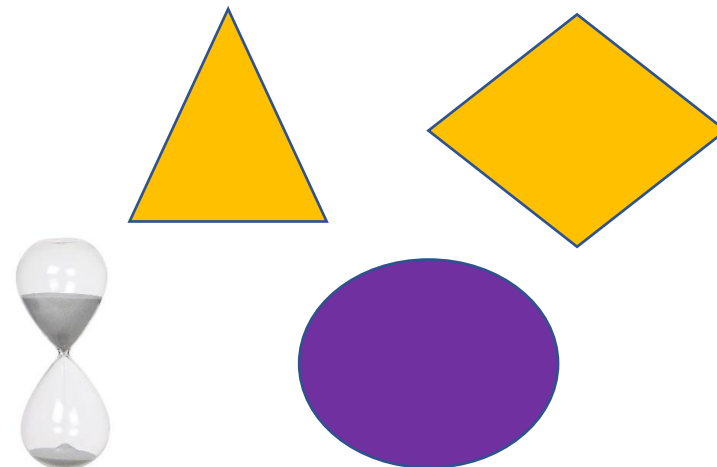
Use of literary techniques to create a chilling atmosphere.

Structural control over the focus of the writing – you know where the writing is headed and how to manipulate it to get there.

### Piece 2: Controlling Structure



### Piece 3: 'Creating and controlling tension'



Choose the shape that you think would allow you to construct a tense scene. Think carefully about whether you want:

**Control and support** or whether you want to **experiment and take risks**.

Make sure that, throughout the unit, you are showing off your ability to use **core skills**:

A range of sentences

A range of punctuation

Vocabulary purposely chosen for effect and audience.

Structural Control - Intentional

Showing not Telling

., - ( ) ; : ! ?

Developing your own 'voice' as a writer.



### Key Quotations:

"I'm not lying, **honest**, Papa"

"He had the air of a man on a **mission**"

"I wanted roses and sunflowers...Mama in a big hat"

"A **shadow** fell over my T-bar sandals"

"I **backed off** as if I'd been **punched**"

"It's so **brilliant**, I could **shag** the arse off it!"

'Junglee'

"It was **time**"

"I could gradually **erase** Anita like a child's pencil drawing"

"darkness is not one colour, there are shades upon shades within black"

"Sam, I am the **others**"

## GCSE Literature: Anita and Me

Highly subjective first-person account of events



Bildungsroman



Diaspora – Meena as a diasporic subject.



*Anita and Me* as a post-colonial text.

60s feminine empowerment



Meena undertaking a voyage of **social education**.

The transformation of Britain from an **imperial power to a post-imperial society**.

Interactions between **class and race**. (exploring the complexities within the friendships with Anita/Sam).

**Construction of the self** – Meena as a **diasporic subject**.

Post-imperial **racism – systemic, malicious**

Semi-autobiographical form creating a kind of '**fictional mythology**' – where **someone with no past creates their own**.

### Notable characters

### Notable Themes

Meena	Mama/Papa	Change	Friendship
Nanima	Anita	Racism	Belonging
Sam	Robert	Growing up	Identity





# UNIT 26 – Standard form

## Knowledge Organiser

### Standard form with numbers $> 1$

Any number between 1 and less than 10  $\rightarrow A \times 10^n$   $\leftarrow$  Any integer

#### Example

$$3.2 \times 10^4$$

$$= 3.2 \times 10 \times 10 \times 10 \times 10$$

$$= 32000$$

#### Non-example

$$(0.8) \times 10^4$$

$$5.3 \times 10^{(0.7)}$$

### Negative powers of 10

0.001	10	1	$\frac{1}{10}$	$\frac{1}{100}$	$\frac{1}{1000}$
$1 \times \frac{1}{1000}$	$10^1$	$10^0$	$10^{-1}$	$10^{-2}$	$10^{-3}$
$1 \times 10^{-3}$	0	0	0	0	1

Any value to the power 0 always = 1

Negative powers do not indicate negative solutions

### Order numbers in standard form

$$6.4 \times 10^{-2} \quad 2.4 \times 10^2 \quad 3.3 \times 10^0 \quad 1.3 \times 10^{-1}$$

$$0.064 \quad 240 \quad 1 \quad 0.13$$

Look at the power first  
will the number be  $>$  or  $<$  than 1

Use a place value grid to compare the numbers for ordering

### Positive powers of 10

1 billion = 1 000 000 000

$$10 \times 10 \times 10 \times 10 \times 10 \times 10 \times 10 \times 10 \times 10 = 10^9$$

Addition rule for indices  $10^a \times 10^b = 10^{a+b}$

Subtraction rule for indices  $10^a \div 10^b = 10^{a-b}$

### Numbers between 0 and 1

$$0.054$$

$$= 5.4 \times 10^{-2}$$

1	$\frac{1}{10}$	$\frac{1}{100}$	$\frac{1}{1000}$
$10^0$	$10^{-1}$	$10^{-2}$	$10^{-3}$
0	0	5	4

A negative power does not mean a negative answer — it means a number closer to 0



## UNIT 26 – Standard form

# Knowledge Organiser

### Mental calculations

$$\begin{aligned} 6.4 \times 10^2 \times 1000 & \text{ Not in Standard Form} \\ = 6.4 \times 10^2 \times 10^3 & \text{ Use addition for indices rule} \\ = 6.4 \times 10^5 \end{aligned}$$

$$\begin{aligned} (2 \times 10^3) \div 4 & \text{ Divide the values} \\ = (2 \div 4) \times 10^3 \\ = 0.5 \times 10^3 \end{aligned}$$

$$\begin{aligned} 8 \times 10^5 \times 3 & \text{ Not in Standard Form} \\ = 24 \times 10^5 \\ = 2.4 \times 10^1 \times 10^5 & \text{ Use addition for indices rule} \\ = 2.4 \times 10^6 \end{aligned}$$

Remember the layout for standard form

Any number between 1 and less than 10  $\rightarrow A \times 10^n \leftarrow$  Any integer

### Addition and Subtraction

Tip: Convert into ordinary numbers first and back to standard form at the end

Method 1

$$\begin{aligned} 6 \times 10^5 + 8 \times 10^5 \\ = 600000 + 800000 \\ = 1400000 \\ = 1.4 \times 10^6 \end{aligned}$$

More robust method  
Less room for misconceptions  
Easier to do calculations with negative indices  
Can use for different powers

Method 2

$$\begin{aligned} 6 \times 10^5 + 8 \times 10^5 \\ = (6 + 8) \times 10^5 \\ = 14 \times 10^5 \\ = 1.4 \times 10^1 \times 10^5 \\ = 1.4 \times 10^6 \end{aligned}$$

This is not the final answer

Only works if the powers are the same

### Multiplication and division

$$\frac{1.5 \times 10^5}{0.3 \times 10^3}$$

Division questions can look like this

$$(1.5 \times 10^5) \div (0.3 \times 10^3)$$

$$(1.5 \div 0.3) \times 10^5 \div 10^3$$

$$= 5 \times 10^2$$

For multiplication and division you can look at the values for **A** and the powers of 10 as two separate calculations

Revisit addition and subtraction laws for indices – they are needed for the calculations

Optical law for indices

$$a^m \times a^n = a^{m+n}$$

Subtraction law for indices

$$a^m \div a^n = a^{m-n}$$

### Using a calculator

$$1.4 \times 10^5 \times 3.9 \times 10^3$$

Use a calculator to work out this question to a suitable degree of accuracy

Input 1.4 and press  $\times 10^x$  Then press 5 (for the power)  
Press  $\times$   
Input 3.9 and press  $\times 10^x$  Then press 3 (for the power)  
Press  $=$

This gives you the solution



Click calculator for video tutorial

To put into standard form and a suitable degree of accuracy

Press **SHIFT** **SETUP** and then press 7 for sci mode.

Choose a degree of accuracy so in most cases press 2

$$\text{Answer: } 5.5 \times 10^8$$



# UNIT 27 – Number Sense

## Knowledge Organiser

### Round to powers of 10 and 1 sig figure



If the number is halfway between we "round up"

5495 to the nearest 1000



5475 to the nearest 100



5475 to the nearest 10



370 to 1 significant figure is 400

37 to 1 significant figure is 40

3.7 to 1 significant figure is 4

0.37 to 1 significant figure is 0.4

0.00037 to 1 significant figure is 0.0004

Round to the first non-zero number

### Round to decimal places

2.46192

Focus on the numbers  
after the decimal point

"To 1dp" – to one number after the decimal

"To 2dp" – to two numbers after the decimal

2.46192 (to 1dp) - Is this closer to 2.4 or 2.5



2.4 6192

This shows  
the number is  
closer to 2.5

2.46192 (to 2dp) - Is this closer to 2.46 or 2.47

2.46 192

This shows the  
number is closer  
to 2.46



### Estimate the calculation

Round to 1 significant figure to estimate

$$4.2 + 6.7 \approx 4 + 7 \approx 11$$

This is an **overestimate** because the 6.7 was rounded up more

$$21.4 \times 3.1 \approx 20 \times 3 \approx 60$$

This is an **underestimate** because both values were rounded down

It is good to check all calculations with an estimate in all aspects of maths – it helps you identify calculation errors.



# UNIT 27 – Number Sense Knowledge Organiser

## Order of operations

**Brackets** Operations in brackets are calculated first

**Other** operations e.g. powers, roots,

**Multiplication/ Division**

They are carried out in the order from left to right in the question

**Addition/ Subtraction**

They are carried out in the order from left to right in the question

## Calculations with money

**Debit** - You have £0 or more in an account

**Credit** - You have less than £0 in an account



Using a calculator – ensure you are working in the correct units.

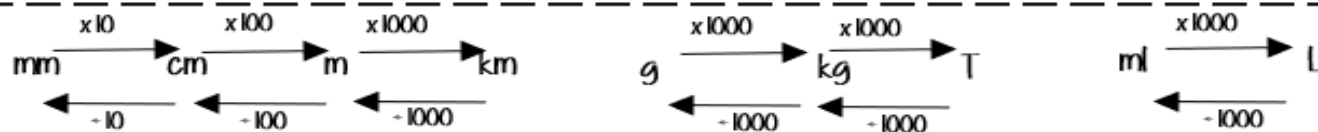
$$\begin{aligned} £130 + 50p &= 130 + 50 \quad (\text{in pence}) \\ &= 130 + 0.50 \quad (\text{in pounds}) \end{aligned}$$

Money calculations are to 2dp

$$£1 = 100p$$



## Units are important: Useful Conversions



## Metric measures of length

Kilo = 1000 x meter      Centi =  $\frac{1}{100}$  x meter

Milli =  $\frac{1}{1000}$  x meter

## Units of weight/ capacity

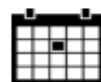
Weight = g, kg, t

Capacity (volume of liquid) = ml, L

## Time and the calendar



**1 Year** – the amount of time it takes Earth to go around the sun 365 (and a quarter) days  
**Leap Year** – 366 days (every 4 years)



**12 Months** – one year = 52 weeks  
31 days – Jan, March, May, July, Aug, Oct, Dec  
30 days – April, June, Sept, Nov  
28 days – Feb (29 leap year)

**1 week** – 7 days  
Monday, Tuesday, Wednesday, Thursday, Friday, Saturday, Sunday

**1 day** – 24 hours  
**1 hour** – 60 minutes  
**1 minute** – 60 seconds

Use a number line for time calculations!

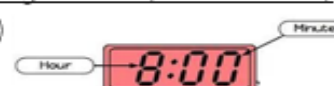
### Analogue Clock



### 12-hour clock

- Use am (morning) and pm (afternoon)
- Only use hour times up to 12

### Digital Clock (24-hour times)



### 24-hour clock

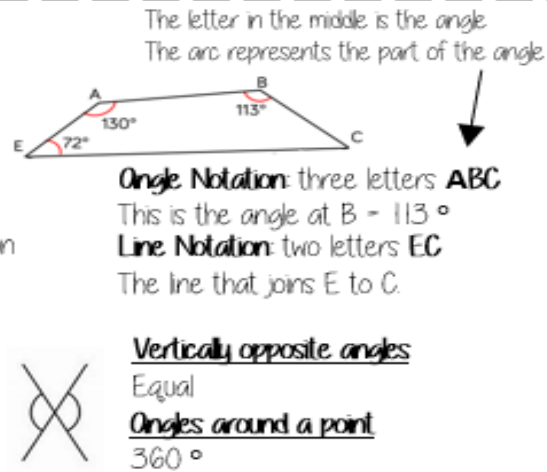
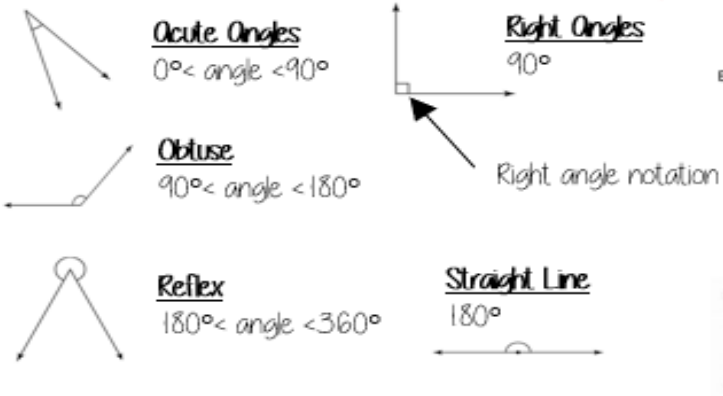
- 0-11 (morning hours)
- 12-23 (afternoon hours)



# UNIT 28 – Angles in Parallel Lines

## Knowledge Organiser

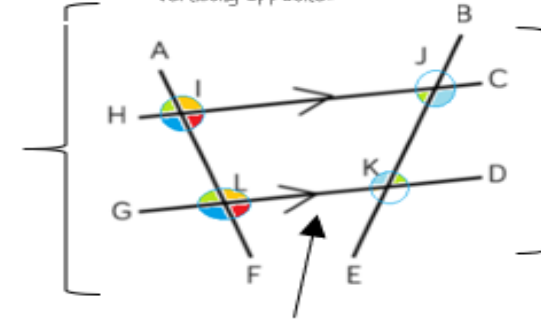
### Basic angle rules and notation R



### Parallel lines

Corresponding angles often identified by their "F shape" in position.

Still remember to look for angles on straight lines, around a point and vertically opposite!

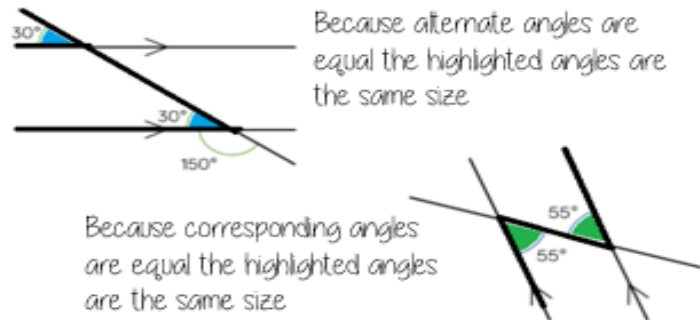


This notation identifies parallel lines

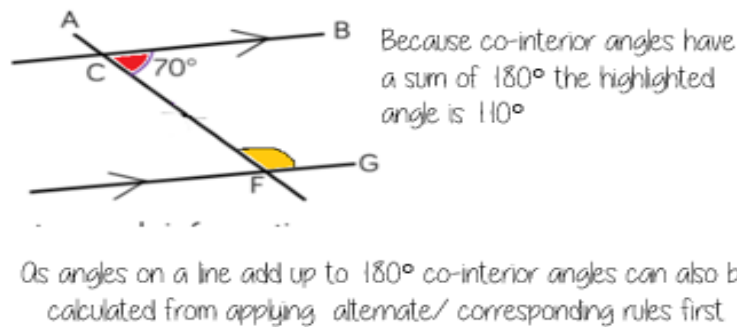
Lines AF and BE are **transversals** (lines that bisect the parallel lines)

Alternate angles often identified by their "Z shape" in position

### Alternate/ Corresponding angles



### Co-interior angles

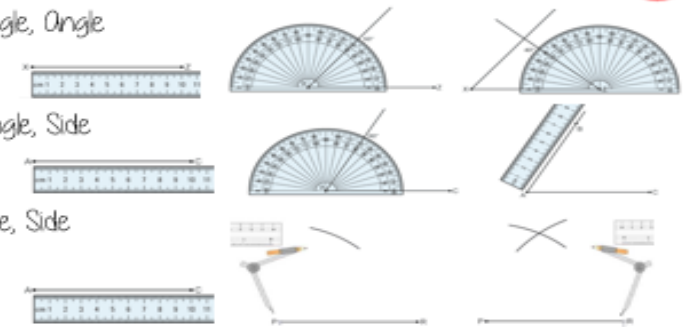


### Triangles & Quadrilaterals

Side, Angle, Angle

Side, Angle, Side

Side, Side, Side



Link to steps R





# UNIT 28 – Angles in Parallel Lines

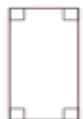
## Knowledge Organiser

### Properties of Quadrilaterals



#### Square

All sides equal size  
All angles  $90^\circ$   
Opposite sides are parallel



#### Rectangle

All angles  $90^\circ$   
Opposite sides are parallel



#### Rhombus

All sides equal size  
Opposite angles are equal



#### Parallelogram

Opposite sides are parallel  
Opposite angles are equal  
Co-interior angles



#### Trapezium

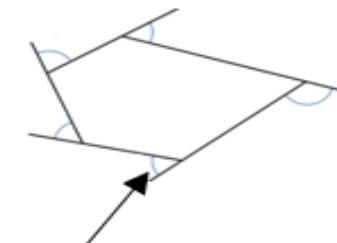
One pair of parallel lines



#### Kite

No parallel lines  
Equal lengths on top sides  
Equal lengths on bottom sides  
One pair of equal angles

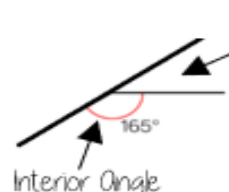
### Sum of exterior angles



#### Exterior Angles

Are the angle formed from the straight-line extension at the side of the shape

Using exterior angles



Exterior Angle

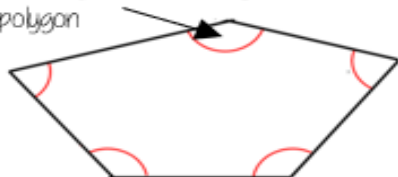
Interior angle + Exterior angle = straight line =  $180^\circ$   
Exterior angle =  $180 - 165 = 15^\circ$

Number of sides =  $360^\circ \div \text{exterior angle}$   
Number of sides =  $360 \div 15 = 24$  sides

### Sum of interior angles

#### Interior Angles

The angles enclosed by the polygon



This is an **irregular** polygon  
— the sides and angles are different sizes

$$(\text{number of sides} - 2) \times 180$$

$$\text{Sum of the interior angles} = (5 - 2) \times 180$$

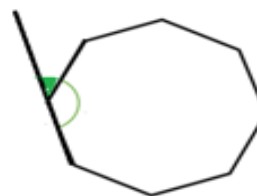


This shape can be made from three triangles  
Each triangle has  $180^\circ$

$$\text{Sum of the interior angles} = 3 \times 180 = 540^\circ$$

Remember this is **all** of the interior angles added together

### Missing angles in regular polygons



$$\text{Exterior angle} = 360 \div 8 = 45^\circ$$

$$\text{Interior angle} = \frac{(8-2) \times 180}{8} = \frac{6 \times 180}{8} = 135^\circ$$

$$\text{Exterior angles in regular polygons} = 360^\circ \div \text{number of sides}$$

$$\text{Interior angles in regular polygons} = \frac{(\text{number of sides} - 2) \times 180}{\text{number of sides}}$$



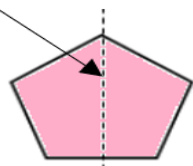
# UNIT 30 - LINE SYMMETRY AND REFLECTION

Year 9 / Unit 30

## Knowledge Organiser

### Lines of symmetry

Mirror line (line of reflection)



Shapes can have more than one line of symmetry....  
This regular polygon (a regular pentagon has 5 lines of symmetry)



Rhombus  
two lines of symmetry

Parallelogram

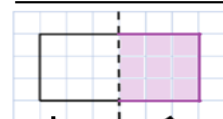
No lines of symmetry



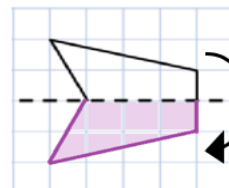
A circle has an infinite amount of lines of symmetry



### Reflect horizontally/ vertically (1)



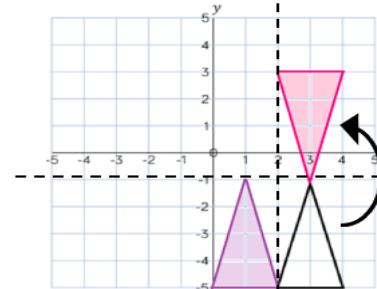
Reflection in a vertical line



Reflection in a horizontal line

Note: a reflection doubles the area of the original shape

Reflection on an axis grid

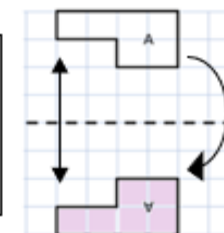


Reflection in the line  $x=2$

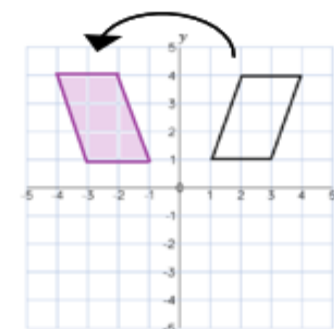
Reflection in the line  $y=-2$

### Reflect horizontally/ vertically (2)

All points need to be the same distance away from the line of reflection

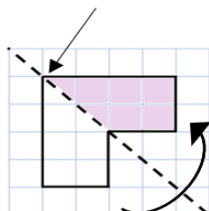


Reflection in the line  $y$  axis — this is also a reflection in the line  $x=0$



### Reflect Diagonally (1)

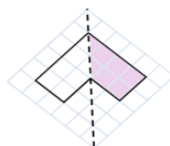
Points on the mirror line don't change position



Fold along the line of symmetry to check the direction of the reflection

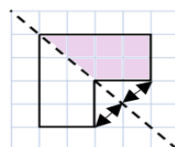
Turn your image

If you turn your image it becomes a vertical/ horizontal reflection (also good to check your answer this way)



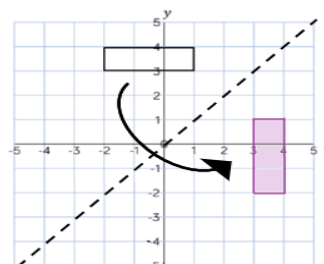
Drawing perpendicular lines

Perpendicular lines to and from the mirror line can help you to plot diagonal reflections

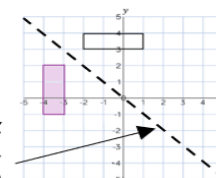


### Reflect Diagonally (2)

This is the line  $y = x$  (every  $y$  coordinate is the same as the  $x$  coordinate along this line)

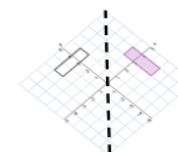


This is the line  $y = -x$   
The  $x$  and  $y$  coordinate have the same value but opposite sign



Turn your image

If you turn your image it becomes a vertical/ horizontal reflection (also good to check your answer this way)



Lines parallel to the  $x$  and  $y$  axis

REMEMBER

Lines parallel to the  $x$ -axis are  $y = \dots$   
Lines parallel to the  $y$ -axis are  $x = \dots$



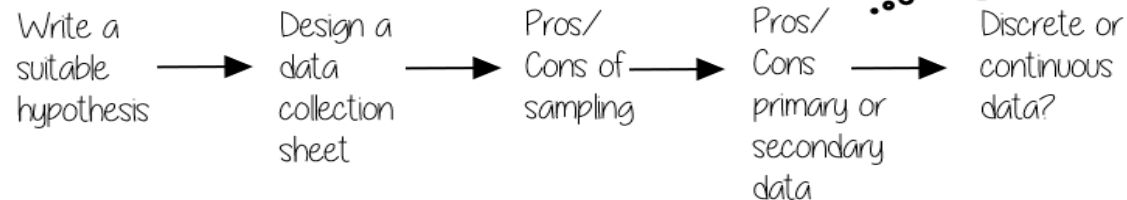


# UNIT 31 — DATA HANDLING CYCLE

## Knowledge Organiser

Year 9 / Unit 31

### Set up a statistical enquiry



#### Features of a data collection sheet

Grouped or ungrouped categories

Data Title	Tally	Frequency

Total number of that group observed

### Design and criticise a questionnaire

**The Question** - be clear with the question - don't be too leading/ judgemental

e.g. How much pocket money do you get a week?

**Responses** — do you want closed or open responses? — do any options overlap? — Have you an option for all responses?

Zero option

☐ £0 ☐ £0.01 - £2 ☐ £2.01 - £4 ☐ more than £4

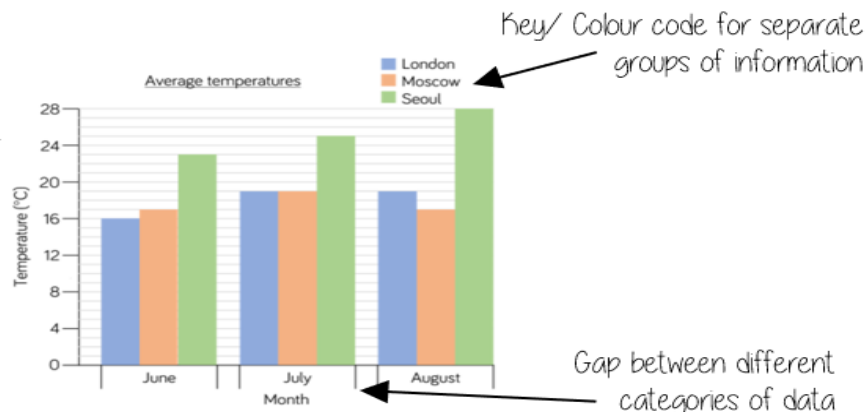
More option

**NOTE:** For responses about continuous data include inequalities  $< x \leq$

### Multiple Bar chart

Compares multiple groups of data

- Clearly labelled axes
- Scale for axes
- Comparable data bars drawn next to each other



### Pictograms, bar and line charts

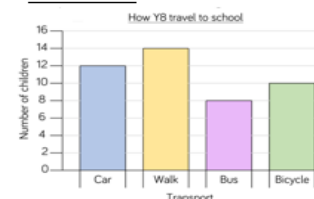
#### Pictogram

Language	
French	4 people
Spanish	4 people
German	1 person

1 person = 4 people

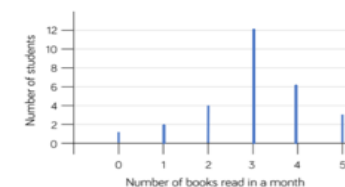
- Need to remember a key
- Visually able to identify mode

#### Bar Chart



- Gaps between the bars
- Clearly labelled axes
- Scale for the axes
- Title for the bar chart
- Discrete Data

#### Line Chart



- Gaps between the lines
- Clearly labelled axes
- Scale for the axes
- Discrete Data



# UNIT 31 — DATA HANDLING CYCLE

## Knowledge Organiser

Year 9 / Unit 31

### Draw and interpret Pie Charts

Type of pet	Dog	Cat	Hamster
Frequency	32	25	3

Remember a circle has  $360^\circ$

There were 60 people asked in this survey (Total frequency)

Multiple method

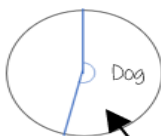
As 60 goes into 360 — 6 times

Each frequency can be multiplied by 6 to find the degrees (proportion of 360)

$\frac{32}{60}$  "32 out of 60 people had a dog"

This fraction of the 360 degrees represents dogs

$$\frac{32}{60} \times 360 = 192^\circ$$



Use a protractor to draw  
This is  $192^\circ$

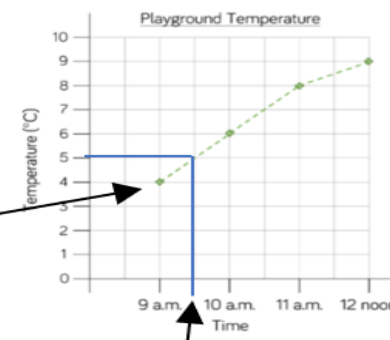
Represents quantitative, discrete data

### Draw and interpret line graphs

- Commonly used to show changing over time
- The points are the recorded information and the lines join the points.

Line graphs do not need to start from 0

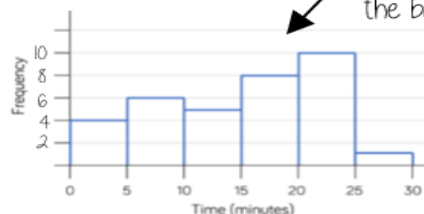
More than one piece of data can be plotted on the same graph to compare data



It is possible to make estimates from the line  
e.g temperature at 9.30am is  $5^\circ\text{C}$

### Grouped quantitative data

Time (minutes)	Frequency
$0 \leq t < 5$	4
$5 \leq t < 10$	6
$10 \leq t < 15$	5
$15 \leq t < 20$	8
$20 \leq t < 25$	10
$25 \leq t < 30$	1



This is a frequency diagram  
There are no gaps between the bars

"More than or equal to 25 and less than 30 minutes"

The use of inequalities shows that this will be a frequency diagram

Grouping the data is useful if there is a large spread of data to begin with

### Find and interpret the range

The range is a measure of **spread**

A smaller range means there is less variation in the results — it is more consistent data

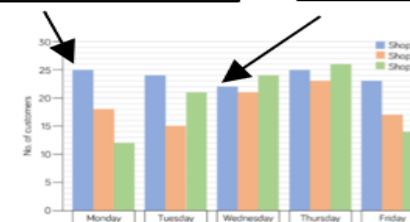
A range of 0 means all the data is the same value

Shop 1 has the smallest range — this indicates it has a more consistent flow of customers each week

Difference between the biggest and smallest values

Shop 1 highest value

Shop 1 lowest value



Range of customers =  $25 - 22 = 3$   
(Shop 1)



## UNIT 32 — MEASURES OF LOCATION

Year 9 / Unit 32

# Knowledge Organiser

### Mean, Median, Mode

#### The Mean

A measure of average to find the central tendency... a typical value that represents the data

24, 8, 4, 11, 8

Find the sum of the data (add the values) 55

Divide the overall total by how many pieces of data you have  $55 \div 5$

Mean = 11

#### The Median

The value in the center (in the middle) of the data

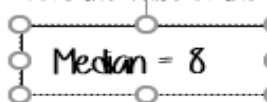
24, 8, 4, 11, 8

Put the data in order

4, 8, 8, 11, 24

Find the value in the middle

4, 8, 8, 11, 24



NOTE: If there is no single middle value find the mean of the two numbers left

#### The Mode (The modal value)

This is the number OR the item that occurs the most (it does not have to be numerical)

24, 8, 4, 11, 8

This can still be easier if the data is ordered first

4, 8, 8, 11, 24

Mode = 8

### Choosing the appropriate average

The average should be a representative of the data set — so it should be compared to the set as a whole - to check if it is an appropriate average

Here are the weekly wages of a small firm

£240	£240	£240	£240	£240
£260	£260	£300	£350	£700

Which average best represents the weekly wage?

The Mean = £307

The Median = £250

The Mode = £240

#### Put the data back into context

Mean/Median — too high (most of this company earn £240)  
Mode is the best average that represents this wage

It is likely that the salaries above £240 are more senior staff members — their salary doesn't represent the average weekly wage of the majority of employers



# UNIT 32 — MEASURES OF LOCATION

## Knowledge Organiser

Year 9 / Unit 32

### Identify outliers

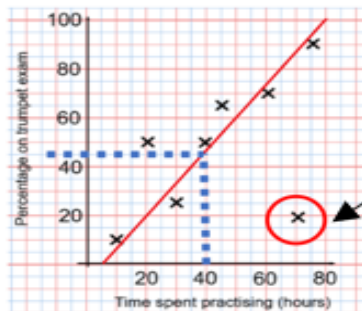
Outliers are values that stand well apart from the rest of the data

Outliers can have a big impact on range and mean.  
They have less impact on the median and the mode

Sometimes it is best to not use an outlier in calculations

Height in cm  
152 150 142 158 182 151 153 149 156 160 151 144

Where an outlier is identified try to give it some context.  
This is likely to be a taller member of the group.  
Could the be an older student or a teacher?



Outliers can also be identified graphically  
e.g. on scatter graphs

### Comparing distributions

Comparisons should include a statement of average and central tendency, as well as a statement about spread and consistency

Here are the number of runs scored last month by Lucy and James in cricket matches

Lucy: 45, 32, 37, 41, 48, 35  
James: 60, 90, 41, 23, 14, 23

Lucy

Mean: 39.6 (1dp), Median: 38, Mode: no mode, Range: 16

James

Mean: 41.8 (1dp), Median: 32, Mode: 23, Range: 76

James has two extreme values that have a big impact on the range

"James is less consistent than Lucy because his scores have a greater range.  
Lucy performed better on average because her scores have a similar mean and a higher median"

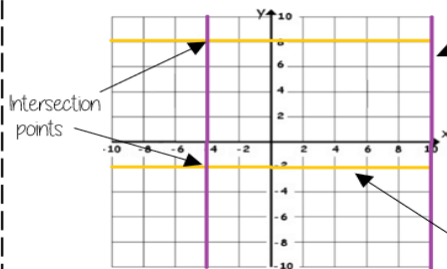


# UNIT 33 — Straight Line Graphs

## Knowledge Organiser

Year 9 / Unit 33

### Lines parallel to the axes



All the points on this line have a x coordinate of 10

'a' can be ONLY positive or negative value including 0

Lines parallel to the y axis take the form  $x = a$  and are vertical

Lines parallel to the x axis take the form  $y = a$  and are horizontal

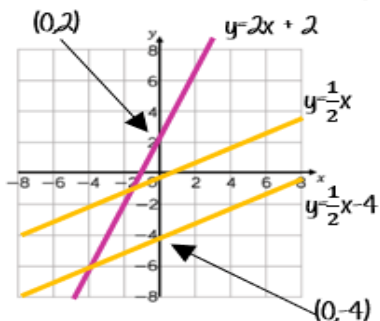
All the points on this line have a y coordinate of -2

eg (3, -2) (7, -2) (-2, -2) all lay on this line because the y coordinate is -2

### Compare Intercepts

$$y = mx + c$$

The value of  $c$  is the point at which the line crosses the y-axis. **Y intercept**



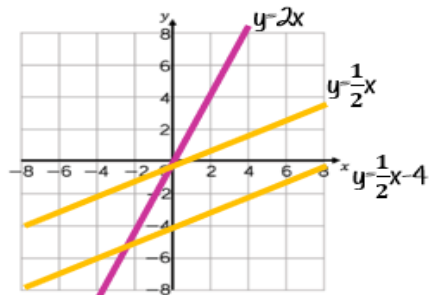
The coordinate of a y intercept will always be (0,c)

Lines with the same y-intercept cross in the same place

### Compare Gradients

$$y = mx + c$$

The coefficient of x (the number in front of x) tells us the gradient of the line



The greater the gradient — the steeper the line

Parallel lines have the same gradient

Positive gradients  
Negative gradients

### Plotting $y = mx + c$ graphs

R

$$y = 3x - 1$$

3 x the x coordinate then - 1

x	-3	0	3
y	-10	-1	8

Draw a table to display this information

This represents a coordinate pair (-3, -10)



You only need two points to form a straight line

Plotting more points helps you decide if your calculations are correct (if they do make a straight line)

Remember to join the points to make a line





# UNIT 33 — Straight Line Graphs

## Knowledge Organiser

Year 9 / Unit 33

$$y = mx + c$$

The **coefficient** of  $x$  (the number in front of  $x$ ) tells us the gradient of the line

$$y = mx + c$$

$y$  and  $x$  are **coordinates**

The value of  $c$  is the point at which the line crosses the  $y$ -axis. **Y intercept**

The equation of a line can be rearranged: E.g.

$$y = c + mx$$

$$c = y - mx$$

Identify which coefficient you are identifying or comparing.

### Real life graphs

A plumber charges a £25 callout fee, and then £12.50 for every hour. Complete the table of values to show the cost of hiring the plumber.

Time (h)	0	1	2	3	8
Cost (£)	£25				£125

The  $y$ -intercept shows the minimum charge.  
The gradient represents the price per mile

In real life graphs like this values will always be positive because they measure distances or objects which cannot be negative.

### Direct Proportion graphs

To represent direct proportion the graph must start at the origin.

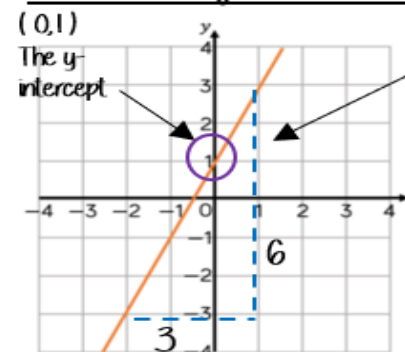
When you have 0 pens this has 0 cost.  
The gradient shows the price per pen.

A box of pens costs £2.30

Complete the table of values to show the cost of buying boxes of pens.

Boxes	0	1	2	3	8
Cost (£)		£2.30			

### Find the equation from a graph



The Gradient  
 $\frac{6}{3} = 2$

$$y = 2x + 1$$

The direction of the line indicates a positive gradient

Positive gradients

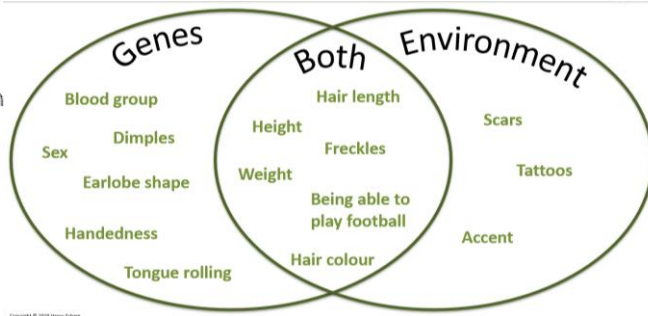
Negative gradients

# Inheritance and evolution

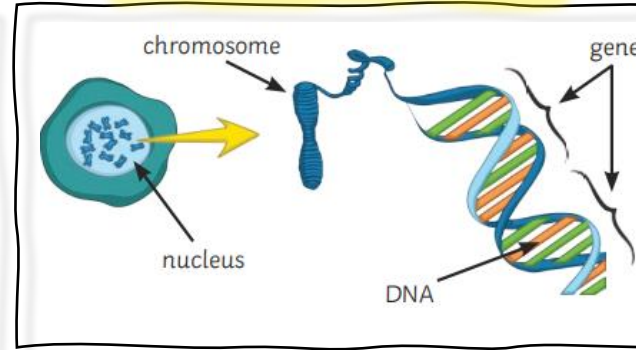
## Environmental vs genetic variation

Variation may be due to differences in:

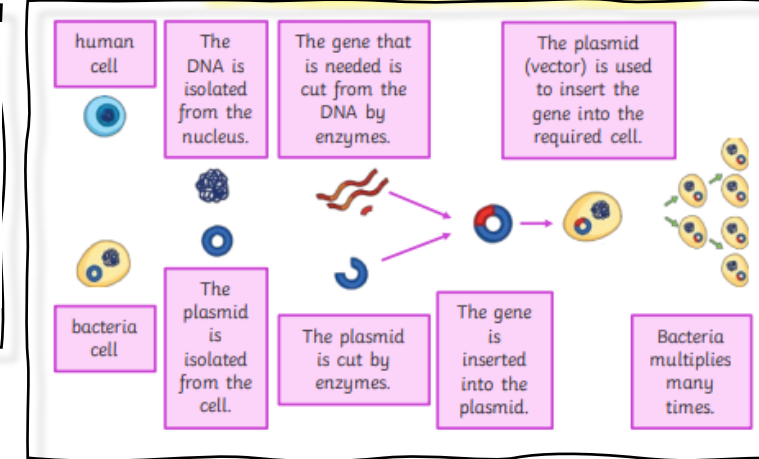
- The genes that have been inherited (genetic causes)
- The conditions in which they have developed (environmental causes)
- A combination of genes and the environment.



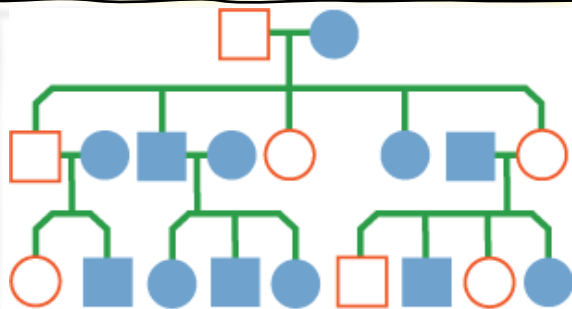
## DNA



## Genetic engineering



## Genes and family trees



- Affected male
- Affected female
- Unaffected male
- Unaffected female

## Punnett squares

	A	a
A	AA	Aa
a	Aa	aa

Put the two alleles from one parent into the boxes at the top. This parent is a heterozygote. This means they have one dominant and one recessive allele.

	A	a
A	AA	Aa
a	Aa	aa

Put the two alleles from the second parent into the boxes on the left. This parent is also a heterozygote.

	A	a
A	AA	Aa
a	Aa	aa

Put the alleles from the first parent into the two boxes underneath them.

	A	a
A	AA	Aa
a	Aa	aa

Put the alleles from the second parent into the two boxes to the right of them.

There are four possible combinations of gametes that offspring can inherit.

One of these four has the genotype aa - that's  $\frac{1}{4}$ , 25%, or 0.25

	male genotype	
	A	a
female genotype	A	AA
	a	aa



# Inheritance and evolution

## Competition

Animals compete for:

- Food
- Water
- Shelter
- Mates



Plants compete for:

- Light
- Water
- Space
- Minerals



## Speciation

**Isolation:** parts of a population become geographically or environmentally isolated from each other.

**Conditions:** If the conditions in each environment are different, then different characteristics will be advantageous.

**Natural selection:** organisms with this characteristic are more likely to survive and pass on the allele for it to their offspring.

**Speciation:** Eventually, the two populations are so different they can no longer interbreed to produce fertile offspring.

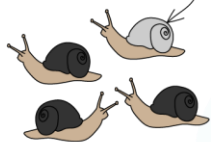
## Fossil record



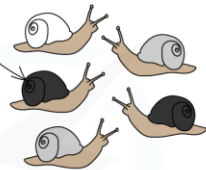
Fossils are the remains of organisms from millions of years ago.

## Evolution

THERE IS VARIATION IN SHELL COLOUR IN THE POPULATION

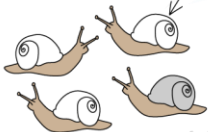


A RANDOM MUTATION PRODUCES A PHENOTYPE WITH A SURVIVAL ADVANTAGE (WHITE SHELL)



LONGER SURVIVAL = GREATER CHANCE OF REPRODUCTION

THE WHITE SHELL PHENOTYPE BECOMES MORE COMMON IN THE POPULATION



KEY:

- = SNAIL WITH BLACK SHELL
- = SNAIL WITH GREY SHELL
- = SNAIL WITH WHITE SHELL

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## Biodiversity



Biodiversity is the number of different species found in an ecosystem or globally.

High biodiversity makes an ecosystem more stable.

Governments are investing money in increasing biodiversity, particularly, in habitats that are rare.

Whole animal	Molar teeth	Forefeet	Height
Modern horse (Equus)		3	1.6m
Pliohippus		2 4 3	1.25m
Merychippus		2 4 3	1.0m
Mesohippus		2 4 3	0.6m
Hyracotherium	 Cement Enamel Dentine	2 5 3 4 3	0.4m

The fossil record shows how much or little species have changed over time. The fossil record provides evidence for evolution by natural selection.

## Useful reactions

### Chemical equations

A chemical reaction can be shown by using a word equation.

e.g. magnesium + oxygen  $\rightarrow$  magnesium oxide  
On the left hand side are the reactants, and on the right hand side are the products.

They can also be shown by a symbol equation:  
e.g.  $2\text{MgO} + \text{O}_2 \rightarrow 2\text{MgO}$

Equations need to be balanced, so the same number of atoms are on each side. To do this, numbers are put in front of the chemical symbols or formulae.

### Reactions of acids

Metal + acid  $\rightarrow$  salt + hydrogen

Metal carbonate + acid  $\rightarrow$  salt + water + carbon dioxide

Metal oxide + acid  $\rightarrow$  salt + water

Hydrochloric acid gives metal chlorides

Sulphuric acid gives metal sulphates

Nitric acid gives metal nitrates

### Making salts

Acids can be **neutralised** using **bases**. Metal oxides, metal hydroxides and metal carbonates are all bases. Bases that are soluble in water are called **alkalis**.

Sodium hydroxide (NaOH) is an example of an **alkali**.

A **salt** is produced when an acid reacts with an alkali.

### Acids and alkalis

Some compounds dissolve in water. When they do an **aqueous** solution is made. Aqueous just means 'dissolved in water'. The solution can be an **acid**, an **alkali** or it can be **neutral**.

When acids dissolve in water, **hydrogen ions** are formed  $\text{H}^+$ . It is the hydrogen ions that make the solution acidic.

Hydrochloric acid =  $\text{H}^+ \text{Cl}^-$

Sulfuric acid =  $\text{H}^+ \text{SO}_4^{2-}$

Nitric acid =  $\text{H}^+ \text{NO}_3^-$

When alkalis dissolve in water they form **hydroxide ions**,  $\text{OH}^-$ . It is the hydroxide ions that make a solution alkaline.

Sodium hydroxide  $\text{Na}^+ \text{OH}^-$

Potassium hydroxide  $\text{K}^+ \text{OH}^-$

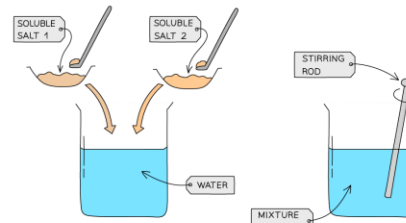
Acids and alkalis are chemical opposites. Some solutions are neither acidic or alkaline. They are neutral.

Pure water,  $\text{H}_2\text{O}$ , is neutral

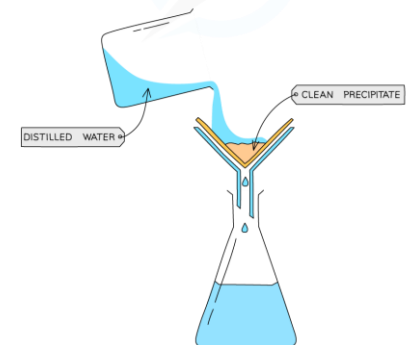
$\text{H}^+ + \text{OH}^- \rightarrow \text{H}_2\text{O}$

### Preparing a soluble salt

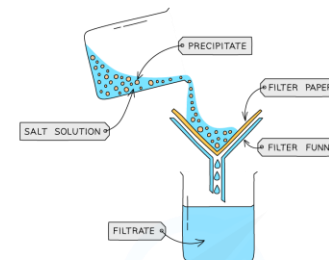
1 ADD SOLUBLE SALTS TO WATER AND MIX



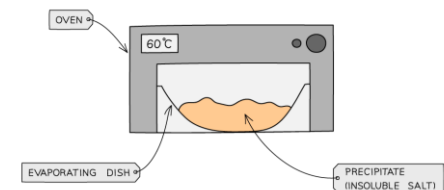
3 WASH THE PRECIPITATE WITH DISTILLED WATER TO REMOVE TRACES OF SOLUTION



2 FILTER TO REMOVE PRECIPITATE FROM THE MIXTURE



4 DRY THE PRECIPITATE (INSOLUBLE SALT) IN AN OVEN



# Useful reactions

## Tarnishing of metals

Metals tarnish when exposed to the air; they react with oxygen.

E.G.

Copper + oxygen  $\rightarrow$  copper oxide

When a substance reacts with oxygen to form an oxide we say that it has been *oxidised*.

## Uses of the reactivity series

We can use the reactivity series to identify if a metal will displace another metal from its compound.

We can do displacement reactions to obtain pure forms of metals from their ores.

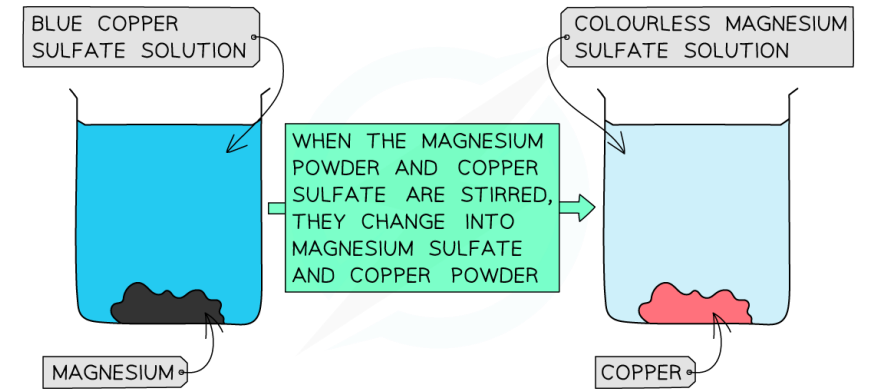
## Reactivity series

POTASSIUM	MOST REACTIVE	K
SODIUM		Na
LITHIUM		Li
CALCIUM		Ca
MAGNESIUM		Mg
ALUMINIUM		Al
CARBON		C
ZINC		Zn
IRON		Fe
HYDROGEN		H
COPPER		Cu
SILVER		Ag
GOLD	LEAST REACTIVE	Au

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## Displacement

A more reactive metal will displace a less reactive metal from its compound.



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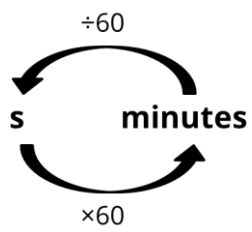
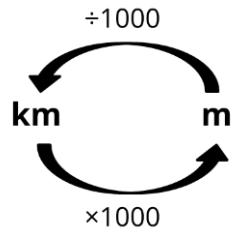
Copper, lead and iron have been known since ancient times. They are not very reactive and it is possible to break their bonds with other elements using fire, wood and charcoal. In these reactions, carbon **displaces** the metals from their compounds.



# Application of forces

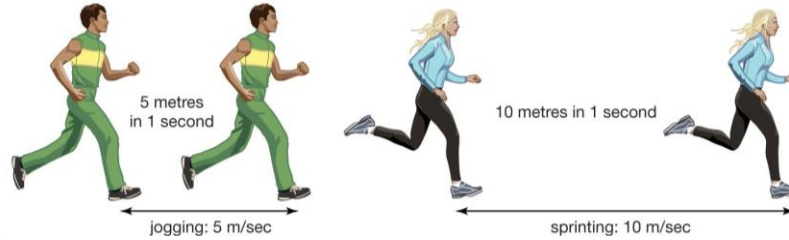
## Speed, distance, time

$$\text{average speed (m/s)} = \frac{\text{distance (m)}}{\text{time (s)}}$$

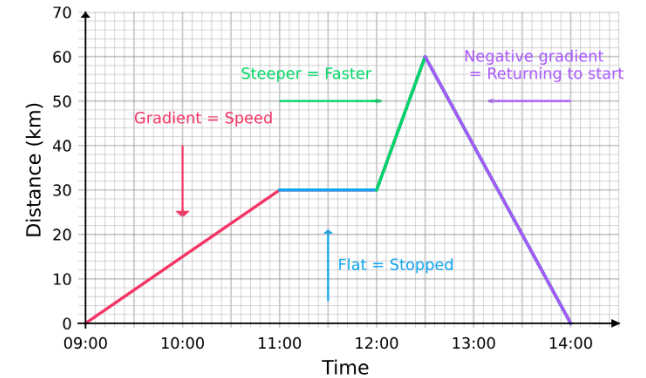


## Acceleration

$$\text{force} = \text{mass} \times \text{acceleration}$$



## Distance time graphs

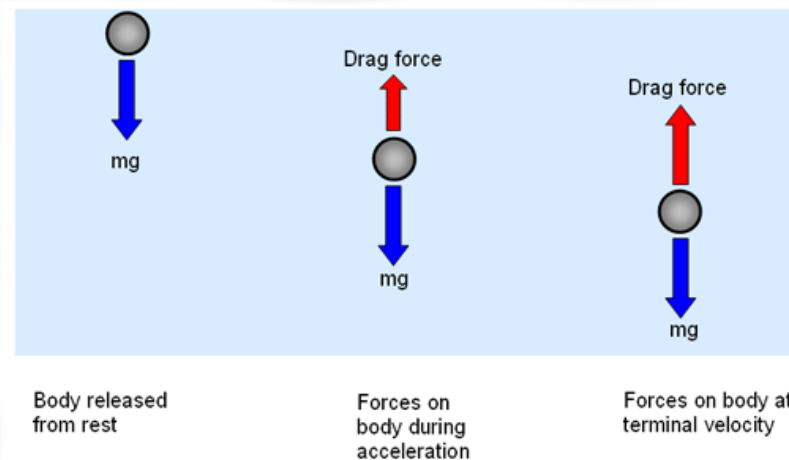


## How do forces change speed

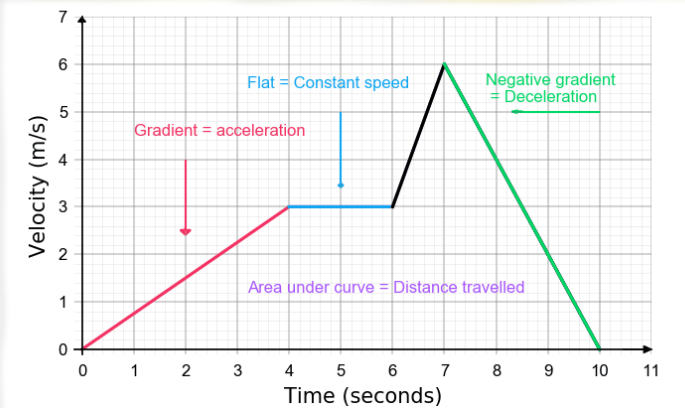


Drag forces slow things down. Air resistance and friction can both affect the speed of vehicles. We can make vehicles more streamlined to reduce the air resistance. This allows the vehicle to travel faster and use less fuel to travel at the same speed as a less streamlined vehicle.

## Terminal velocity

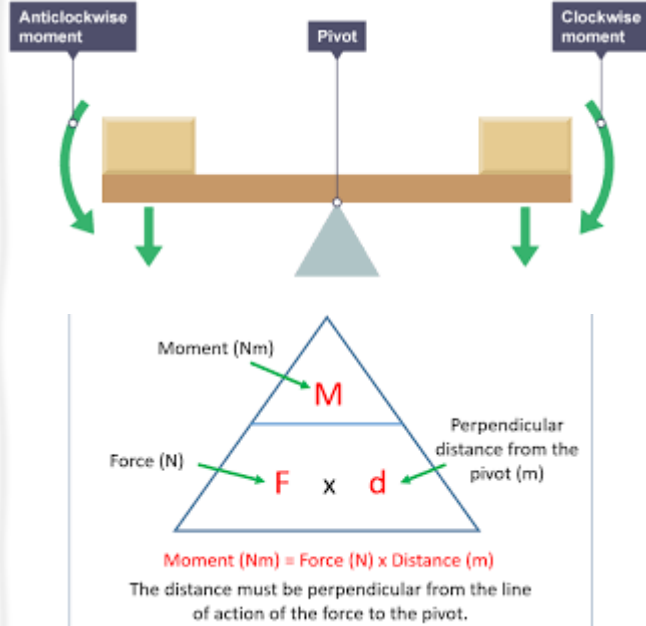


## Speed time graphs



# Application of forces

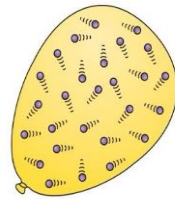
## Moments



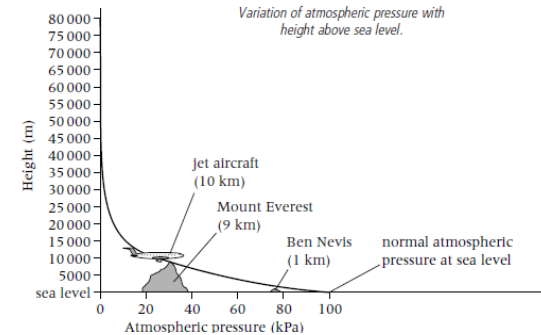
## Pressure

$$\text{Force} = \text{pressure} \times \text{surface area}$$

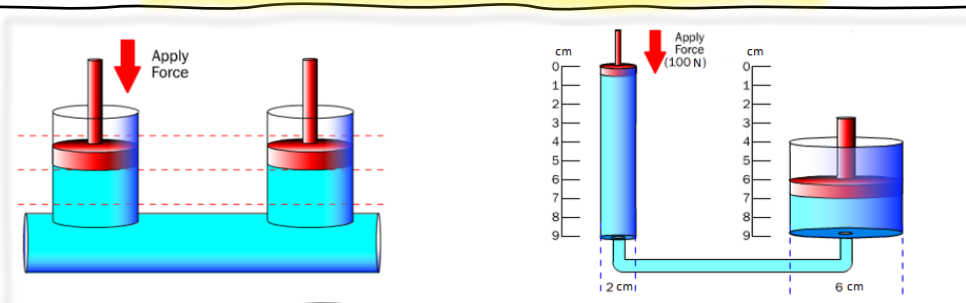
$$\text{Pressure in a fluid} = \text{Density} \times \text{gravity} \times \text{height of fluid}$$



Gas pressure is caused by the collision of gas particles with the surface.



## Hydraulics





You will master the year 7 and 8 **core and advanced skills**, and learn additional **advanced skills** in isolation and authentic competitive situations.

Year / Unit Year 9 football

### Year 7 and 8 **core and advanced skills** to master

- Dribbling and ball control with dominant foot.
- Passing and controlling the ball with both feet, over short and mid distances.
- Moving into space off the ball.
- Intercepting the ball, by good positioning and anticipating.
- Marking and defensive positioning.
- Dominant and non-dominant foot shooting.
- Block tackle.
- Beating defenders with feinting/dummying/step over, and accelerating into space.



### Range of passing with both feet

- Passing with instep and laces, over arrange of distances (short, mid, long), with both feet.

### Pressure/interception/ block tackle

- Decision making when to try to pressure attackers/ intercept or block tackle, whilst being in a team defensive shape/.
- Team defensive pressure.

### PE reads



Available in the school library

### Key words

**Black tackle:** Using instep of foot, to dispossess an attacking player.

**Dominant foot:** Foot which is your strongest and most comfortable, when kicking a ball.

**Jockeying:** Keeping between the attacker and their intended target (usually the goal), when defending, to avoid getting beat.

**Off the ball marking:** Marking players goal-side, or marking an area of the pitch, to keep in a good team defensive shape.

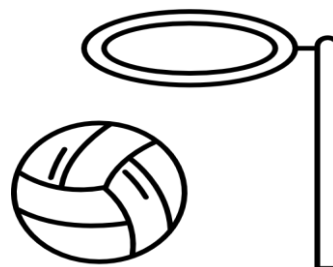


You will master the year 7 and 8 **core and advanced skills**, and learn additional **advanced skills** in isolation and authentic competitive situations.

Year / Unit Year 9 Netball

### Year 7 and 8 **core and advanced skills** to master

- Shoulder pass, bounce pass, chest pass and decision making over different distances.
- 1-2 footwork and pivot, when receiving the ball, catching the ball on the run, and turning in the air.
- Positions of the court for all positions, and staying onside.
- Dodging to find space to receive the ball.
- Shooting technique.
- Marking, shadowing and intercepting the ball.
- Centre pass strategies and tactics, and starting positions.



### Defending- zonal

- Marking an area, not an individual player.
- Defensive and team organisation.

### Dodging- holding space

- Creating space, and timing run into it. Decision making of when to dodge.

### Shooting- split landing

- GS or GA, when receiving the ball in the D, placing back leg closer to the post, prior to catching, so you can pivot close to the post/goal.

### Back-line pass

- Role of individual players, when attacking and defending a back-line pass.

### PE reads



Available in the school library

### Key words

**Split landing:** GS or GA, when receiving the ball in the D, placing back leg closer to the post, prior to catching, so you can pivot close to the post/goal.

**Back-line pass:** Inbounding the ball on the back-line, whilst attacking.

**Zonal marking:** Marking an area, rather than an individual player.

**Contact and obstruction (netball):** 1 metre back (from feet), when defending, before using arms to try and block/ intercept.



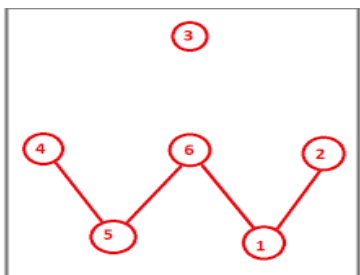


You will master the year 7 and 8 **core and advanced skills**, and learn additional **advanced skills** in isolation and authentic competitive situations.

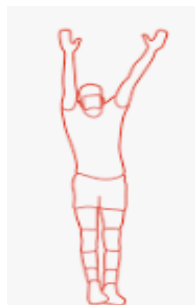
### Year 7 and 8 **core and advanced skills** to master

- Dig shot.
- Set shot, and set shot through the angle.
- Under arm serve and over arm serve.
- Returning the serve by making correct decisions on when to set or dig. Max. 3 touches per team.
- Attaching play (3 touch)- dig, set and volley over the net (get ball to the front).

### W formation



### Blocking



### Dig and set placement decision making/ accuracy.

- Decision making of what shot, and where to hit it. Always forward and towards the setter.

### Jump serve/over arm serve

- Hold ball in non-dominant hand.
- Open palm dominant hand.
- Toss the ball into the air, jump forwards, and upwards, and strike to ball with dominant hand, aiming for the oppositions' side of the court.

### W formation

- Within volleyball rotation, starting position and roles, when receiving a serve.
- Defined areas to defend when receiving a serve.

### Blocking- defensive play

- A two-handed block at the net, when the opposition spike.
- Jump high and time at the point of the spike. Strong arms and push down at point of impact.

## Year / Unit Year 9 Volleyball

### PE reads



Available in the school library

### Key words

**Spike:** A one-handed, open-palm attacking shot, when set by a team mate at the net. Aiming for the opposition floor, with power.

**Set through the angle:** Moving feet to face where you want to set the ball, prior to receiving the ball.

**Jump serve:** Same technique as an over arm serve, but with a jump upwards and forwards, strike the ball at a higher point, and closer to the net.

**Block:** A two-handed block at the net, when the opposition spike.

**W formation:** Within volleyball rotation, starting position and roles, when receiving a serve.



You will learn the knowledge, and develop motor competence, in a wider range of fitness testing.

Year / Unit Year 9 Fitness

### Multi stage fitness test

- 20m distance between cones.
- Run in time with the beeps.
- If you miss two beeps, drop out.
- Measures **Stamina**.

### Standing broad jump test

- Two footed jump as far as possible.
- Land on two feet, and record distance.
- Measures **Power**.

### Standing stork test

- Stand on strongest leg with other foot touching your knee, and your hands on your hips.
- Raise heel off the floor and stand on toes.
- Measures **Balance**.

### Illinois agility test

- Time taken to run a specific agility based course.
- Measures **Agility**.

### Cooper run test

- 12 minutes of continuous running. Measure distance in metres.
- Measures **stamina**.

### Press-up and sit up test

- Maximum number of press ups or sit ups in 30 seconds.
- Measures **muscular endurance**.

### 30m flying sprint test

- Rolling start (a run up). Time taken to run 30m.
- Measures **speed**.

### Hand grip test

- Grip the bar as possible with straight arm for 5 seconds, and lower arm to side.
- Measures **Strength**.

### Sit and reach test

- Feet flat against sit and reach box- legs straight.
- Reach as far forward as possible, and hold position.
- Measures **Flexibility**.

### Key words

**Balance:** Keeping body upright and in control of movement, without falling over.

**Stamina:** The ability of the heart and lungs to transport and utilise oxygen, during exercise.

**Speed:** Time taken to move the body from A to B.

**Power:** Speed and strength combined in explosive movements.

**Muscular endurance:** The ability for muscles, or group of muscles, to repeatedly contract.

**Strength:** Maximum force exerted by a muscle, or group of muscles, against resistance.

**Flexibility:** Range of movement at a joint.

**Coordination:** Using two or more body parts, at the same time.

### Wall throw test

- 2m away from the wall.
- Throw underarm against the wall, and catch in opposite hand, for 30 seconds. Alternate hands.
- Measures **Coordination**.

### PE reads





# What will you be learning in Year 9 Art?

## Working to a brief

Stencil, printing, graphic design and Photoshop



Summer term



Surrealism project  
Automatic art, creative  
clay sculptures

Spring term



Autum term



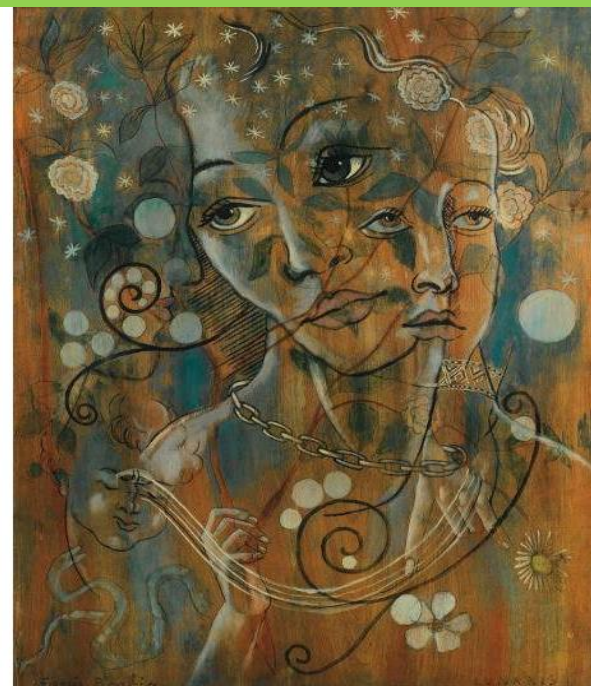
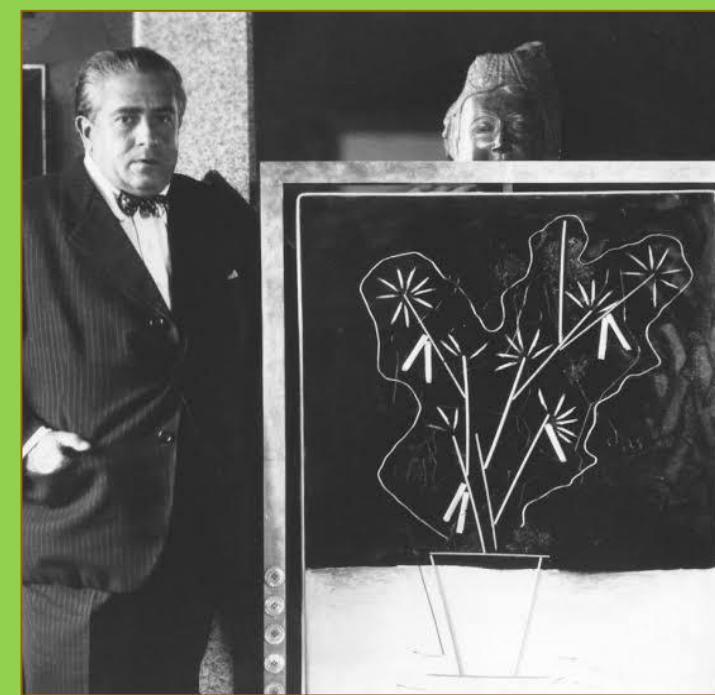
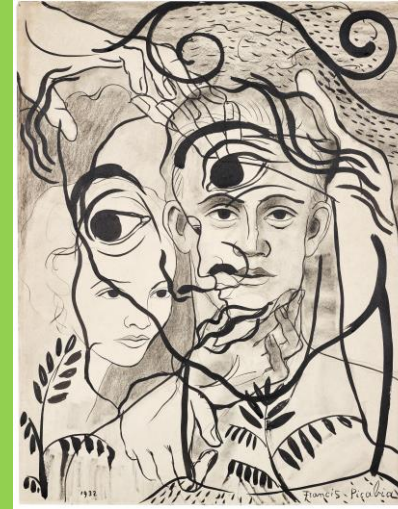
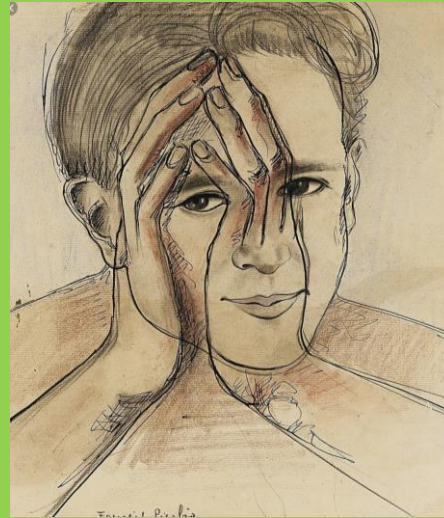
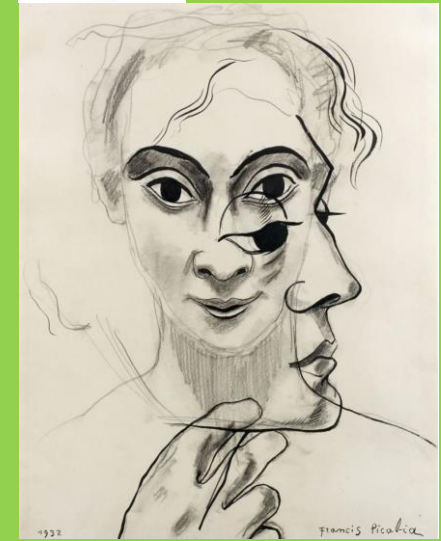
Mini projects and year 9 Art Exam – Portraits, Still Life, Landscape





# Francis Picabia

1879 -1953 French avant-garde painter, poet and typographer



Picabia was inspired by

**Dada-ism**

**Cub-ism**

**Surreal-ism**

## CUBISM

- Started around 1907 in France.
- Cubist artists, like **Picasso**, took everyday objects (like guitars, fruit, or people) and **broke them into pieces**.
- They painted these pieces from different angles, showing all sides at once.

## DADAISM

- Shortly after WWI, the modern world was in chaos. People were upset, confused, and angry.
- During this time, some artists and thinkers decided to create something totally different.
- Dadaism was like a rebellious art club where people made things that didn't make sense on purpose. They wanted to shake up the art world and challenge the way people thought about creativity.

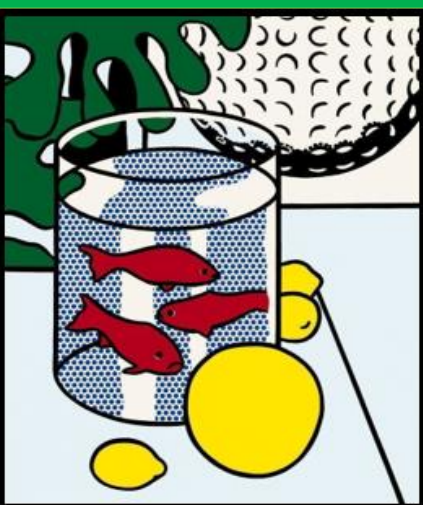
## SURREALISM

- The goal of the Surrealist artists was to join the world of dreams and fantasy with the everyday rational world, creating "an absolute reality."
- They explored the unconscious mind, resulting in dreamlike and sometimes bizarre images.





# Pop Art Still Life - an art movement that emerged in the UK and the United States during the mid- to late-1950s

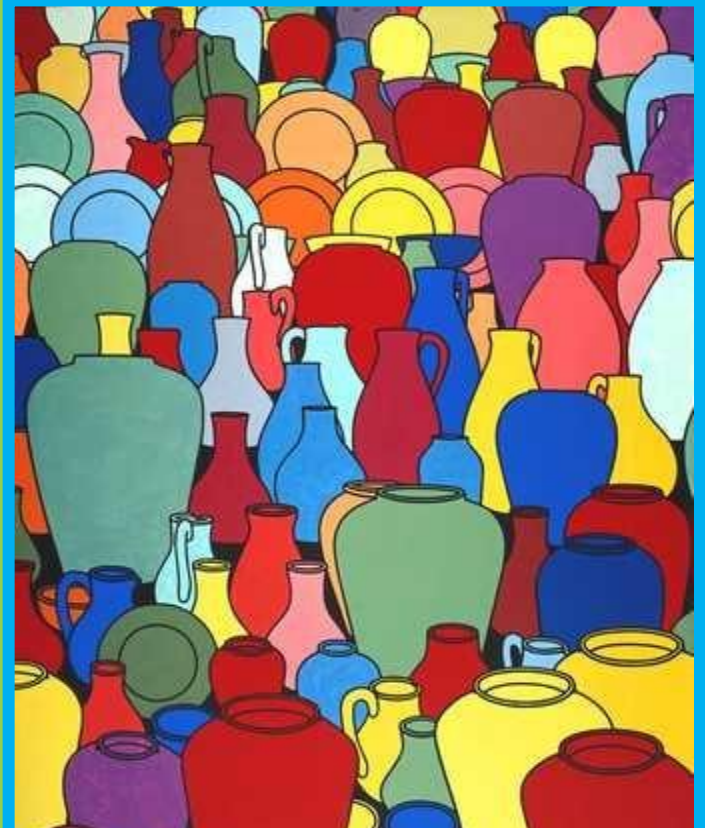


**LICHTENSTEIN**  
His paintings featured **bold, graphic lines**, primary colors, and **Ben-Day dots**; the characteristic dots used in printing comic books. He was inspired by adverts, comics and art history



**POP ARTISTS**  
**ANDY WARHOL**  
**ROY LICHTENSTEIN**  
**PATRICK CAULFIELD**

**WARHOL**  
Warhol is considered one of the most important American artists of the the 20th century. His **iconic** works challenged **traditional art** and embraced everyday **consumer objects** and popular imagery.



**CAULFIELD**  
Painter and printmaker known for his colourful bold canvases. His work often incorporated elements of **photorealism** within a **pared-down** scene.  
He was also inspired by **Surrealism** was interested in creating an uncomfortable **ambiguity** between the real and the **illusionary**





# Vincent Van Gogh 1853 - 1890

Dutch Post-Impressionist painter who is among the most famous and influential figures in the history of Western art.



Starry  
Night,  
1889



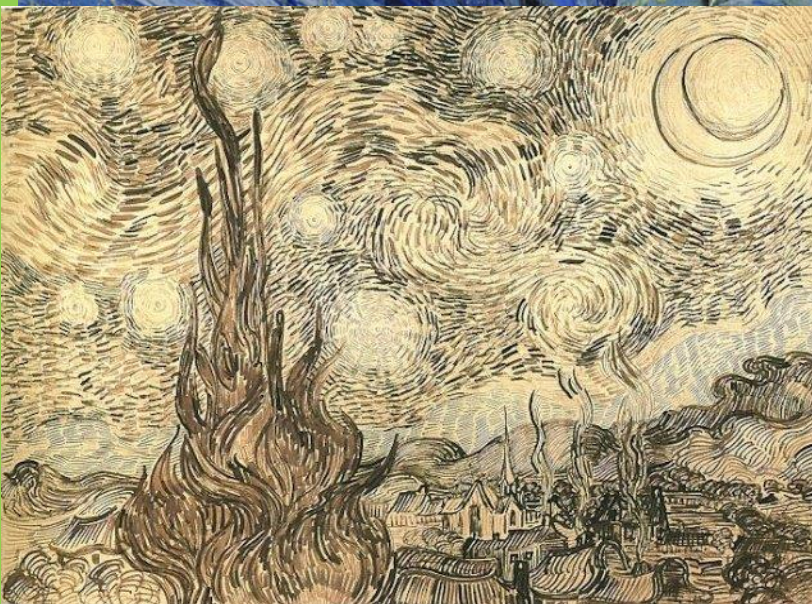
**Van Gogh was inspired** by the Impressionists and Post-Impressionists while living in Paris. These artists used bright colours and unique styles. Van Gogh adopted their vibrant palette and developed his own artistic style

Van Gogh painted "**Starry Night**" from a room in the mental asylum where he was recovering from mental illness and his ear amputation.

He painted the same view 21 times. Although each picture depicts various times of day and night and different weather conditions, all the works include the line of rolling hills in the distance. None show the bars on the window of his room.

He considered "The Starry Night," which one day would rank among his most famous works, to be a failure.

The dominant morning star in the painting is Venus, which was in a similar position at the time he was working, it would have shone brightly, just as Van Gogh had painted it.







# YEAR 9 EXAM - WHAT TO EXPECT

## 1. ARTIST RESEARCH PAGE

- The artist's name as the title
- Two images by the artist stuck in
- Your description of their work – use the questions below
- Your copy of one of their artwork\*
- \*You will need to practice the artist's techniques AND understand what their work is ABOUT – their **concept**

## 2. PRACTICE PIECES

- Having UNDERSTOOD the **artist's technique** and what their work is ABOUT, their **CONCEPT** – You will **develop** and then **refine** your own idea based on the artist's work
- You'll need to show a good level of creativity

## 3. PHOTOGRAPHIC RESOURCES to work from in your practice piece and your exam

- This is referred to as your **resource image** and needs to be a photo linked to your theme.
- To score higher – take your own photos

## 4. YOU WILL HAVE AN OPTION TO USE DIGITAL MEDIA

- **Photoshop** - layer masks / selection tools / filters
- OR
- **Procreate** – layers / brush effects

- **COMPOSITION** – HOW DO THEY LAYOUT THEIR DESIGN ?
- WHAT **MEDIA** TO THEY USE?
- WHAT COLOUR SCHEMES DO THEY USE ?
- WHAT TECHNIQUE DO THEY USE, IS IT FLAT SMOOTH COLOUR OR EXPRESSIVE MARKS / LINES ?
- REALISTIC SHAPE OR EXAGGERATED / **ABSTRACT** ?
- DO THEY HAVE A **CONCEPT** ? EG, ENLARGING THE SUBJECT

## **CONSIDER THE FOLLOWING IN YOUR OWN PRACTICE PIECE:**

- **COMPOSITION** – LAYOUT
- CHOOSE THE APPROPRIATE **MEDIA**
- COLOUR **SCHEME**
- **TECHNIQUE**
- **CONCEPT**

## WHAT MAKES A GOOD PHOTO?

- Light/**Exposure**
- **Composition**
- **Rule of thirds**
- Color/Tone /**Contrast**
- Focus

## **WHAT YOU ARE MARKED ON:**

1. CREATIVITY 25%
2. RELEVANCE TO ARTIST 25%
3. SKILL WITH CHOSEN MEDIA 25%
4. OVERALL RESPONSE (including quality of your prep work) 25%



**Key words:** Good, service, consumer, customer, needs, wants, social enterprise, entrepreneur, entrepreneurship, resources, land, labour, capital, primary, secondary, tertiary, interdependence, interest rates, inflation, gross domestic product

## Year 9: Topic One

What are the factors that affect a business?



### BUSINESS

A **business** is set up to provide goods and services to customers in return for money. Demand is required for the good or service for the business to gain sales.

#### Reasons for starting a business

- ☐ To produce goods
- ☐ To supply services
- ☐ To fulfil a business opportunity
- ☐ To provide a good or service that will benefit others

### GOOD v SERVICE

A **good** (product) is a physical item (that you can touch), such as a car whereas a **service** is an intangible item (that is something that you cannot touch), such as a haircut or a yoga lesson.

### Opportunity cost

This is the sacrifice made when a decision is made

### SOCIAL ENTERPRISE

This is a business that sets up to help others rather than to make a profit

#### Entrepreneur characteristics

Hardworking

Innovative

Organised

Willing to take a risk

### ENTREPRENEUR

Someone who **takes the risks** involved in starting a business.

**For example,** if a business decides to spend money on developing a new product rather than spend it on opening another shop, they are sacrificing the income they could have gained from an extra shop

### Sectors of production

Primary	Secondary	Tertiary
<b>First stage of production</b> Extracting raw materials	<b>Second stage of production</b> Using raw materials in the manufacturing process	<b>Third stage of production</b> Selling finished products or providing services
Fishing Farming Mining	Manufacturing Construction Food processing	Retail Hospitality Banking

#### The functions of a business

##### FINANCE

The Finance Department is **responsible for managing money**. This could involve activities such as raising finance, monitoring the money coming in and out (cash flow) and analysing the financial performance.

##### HUMAN RESOURCES

The Human Resources Department is **responsible for managing people**. This could involve activities such as recruitment and selection, motivating them and training them.

##### MARKETING

The Marketing Department is **responsible for increasing awareness and customer engagement**. This could involve activities such as market research, the nature of the product, the price to set, where to sell and how to promote.

##### OPERATIONS

The Operations Department is **responsible for managing the day to day activities that enables the production of a good or service**. This could involve activities such as overseeing manufacturing and quality, supply chain management and keeping customers happy.

**The business environment is always changing** - This means that a business must adapt if they want to remain successful. The changes that affect a business are in four categories:

#### Changes in technology

Technology changes so fast - Apple are planning their next iPhone before they have released their last one!

Businesses need to be up to date with advances in technology so that they can compete with their rivals

#### Changes in the economic environment

This involves changes in **interest rates, exchange rates, inflation and Gross Domestic Product (GDP)**

Certain changes can influence a customer's buying habits and so it is important that businesses are aware of the current economic situation

#### Changes in legislation

Legislation is changing all the time - these changes can affect a business' costs or demand for their product

When the minimum wage changes, a business must pay their lower paid employees more

If the Government change advertising laws, sales may decrease

#### Changes in environmental expectations

Businesses are constantly under pressure to be socially responsible - customers are becoming increasingly interested in how businesses manufacture and where they get their supplies from

For some customers, these expectations will be the reason whether they purchase or not



**Key words:** Sole trader, profit, unlimited liability, partnership, deed of partnership, stakeholders, company, shareholder, limited liability, stock exchange, flotation, surplus, grant

## Year 9: Topic Two

### How are businesses set up?



#### Sole trader

A sole trader is a person that owns the business by themselves – no paperwork is required to set up, they just start trading

#### Partnership

A partnership is set up by 2 or more people – usually a Deed of Partnership is drawn up to set out the rules

#### Private limited company (ltd)

A **private** limited company is owned by shareholders who are usually the founders and/or family – shares cannot be advertised for sale to the general public

#### Public limited company (plc)

A **public** limited company is owned by shareholders who are members of the general public – shares are bought and sold on the Stock Exchange

#### Not-for-profit organisation

A not-for-profit organisation is set up for the benefit of something other than profit. Social enterprises and charities are examples.

#### Advantages

- Easy to setup
- Full control over all aspects of the business
- Quick decision making
- Keep all the profits

#### Disadvantages

- Unlimited liability
- Can be difficult to raise finance
- Limited skills
- Lack of buying power due to size

#### Advantages

- Different skills
- Access to more finance
- Sharing the risk and workload
- Joint decision making

#### Disadvantages

- Unlimited liability
- Shared profits
- May have disagreements
- Lack of full control

#### Advantages

- Limited liability
- Separate legal identity
- Privately sold shares mean ownership is controlled

#### Disadvantages

- Setup involves paperwork and costs
- Partial accounts can be seen by the public
- Corporation tax must be paid

#### Advantages

- Limited liability
- Separate legal identity
- Access to large amounts of finance

#### Disadvantages

- Publicly sold shares could lead to a takeover
- Could receive negative publicity
- Business accounts must be available to the public

**Sole traders and partnerships** have **UNLIMITED LIABILITY** –

This is when the owner's personal possessions are at risk if they find themselves in debt. Should they owe money, they are legally responsible for that debt and therefore may have to sell their personal possessions to pay that money back. This means that there is **more risk** with these types of ownership.

**Limited companies** have **LIMITED LIABILITY** – This means that shareholders will only lose money that they invested in the company. Should the company find themselves in debt, the shareholders would not have to sell their personal possessions to pay the debt off. This means that there is **less risk** with these types of ownership.

The type of ownership that a business will choose will **depend on** several factors:

#### Business goals

If the main aim of the business was profit rather than social objectives, a sole trader, partnership or company would be the best option

#### Control

If keeping control of the business is important then a public limited company would not be the best choice

#### Risk

If it is important to protect personal possessions, then a limited liability company would be the best choice

#### Amount of finance

Starting with very little money would be best suited to a sole trader, partnership or private limited company

Most appropriate type of business ownership

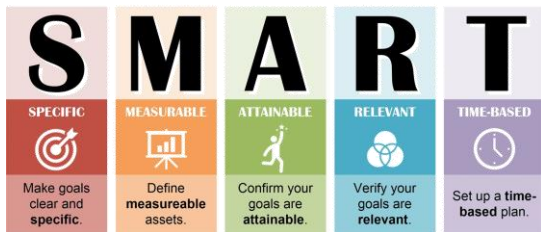




**Key words:** Aim, objectives, private sector, public sector, dividends, negotiation

### AIM v OBJECTIVE

An aim is a **general goal** whereas an objective is a more **specific target** that shows how that goal will be met



For example:

**AIM:** To grow

**OBJECTIVE:** To increase sales by 15% in 2 years

### Profit maximisation

Most likely a main objective for an **established business**

**To maximise profit** means that the business has more revenue than it has costs

Making a profit can take a while for some businesses – the average is 2-3 years

### Market share

Most likely a main objective for an **established business**

**To increase market share** means that a business wants to sell to more customers than their competitors in the industry that they are operating in – it measures their sales against those in their industry and is expressed as a %

### Customer satisfaction

Most likely a main objective for a **start-up business**

**To improve customer satisfaction** means that a business wants to ensure that customers are happy so that they remain loyal – this should lead to higher profits if customers repeat purchase and recommend to others

### Survival

Most likely a main objective for a **start-up**

**To survive** means that a business needs to have enough money coming IN that they can pay for the money going OUT

### Growth

Most likely a main objective for an **established business**

**To grow** means to expand either in your home country or abroad

Many businesses will want to open more outlets or sell a wider range of products

### Social and ethical objectives

Most likely a main objective for an **established business**

**Acting ethically** means that a business wants to show that they are making decisions for the right reasons, for example, being honest with customers, treating suppliers well and paying employees good wages

### Shareholder value

Most likely a main objective for an **established business**

**Increasing shareholder value** means that a business will be aiming to increase profits so that the shareholders will receive a dividend (a share of the profit)

For example:

A business could use **customer satisfaction** to see if the number of complaints has reduced

A business could use **sales** to see if the sales have increased over time.

A business could use **growth** to see if new products sold have increased

**Success can be measuring through:**

profit  
sales  
market share  
growth  
customer satisfaction  
repeat customers  
shareholder value



Conflict between shareholders

## Year 9: Topic Three

### Why does a business set up?



### STAKEHOLDER

Someone or a group of people who have an **interest in a business** – that interest can be either positive or negative

### Stakeholders' main objectives

CUSTOMERS	High quality products and services that meet their needs; Value for money; Excellent customer service (particularly after sales service)
OWNERS	Maximise the profits they can earn so that they can receive higher dividends; Increase the value of shares; Ensure that they are running the business efficiently, expand and increase their market share
SUPPLIERS	Regular business; Payments made on time; Good relationships
LOCAL COMMUNITY	Job creation; Minimising environmental impact such as air and noise pollution, litter or congestion
EMPLOYEES	Safe working conditions; Fair pay and other benefits; Training and promotion opportunities; Job security

### Impact and influence stakeholders have on business

**EMPLOYEES** may **negotiate** for better pay and conditions, **strike** if the business does not meet their request for increased pay or better working conditions or **work to rule** if they don't agree with what the business asks

**CUSTOMERS** may **complain** if they are not happy with a product or service that has been provided or **boycott** the business if they do not agree with the way that they run their business

**EMPLOYEES v SHAREHOLDERS:** Employees want higher wages but shareholders want higher profits – both of these are a cost to a business

**SUPPLIERS v OWNERS:** Suppliers want to be paid within a reasonable time but owners want to negotiate longer payment terms

**CUSTOMERS v SHAREHOLDERS:** Customers want as high quality for as low price as possible but shareholders want higher prices to maximise their dividends

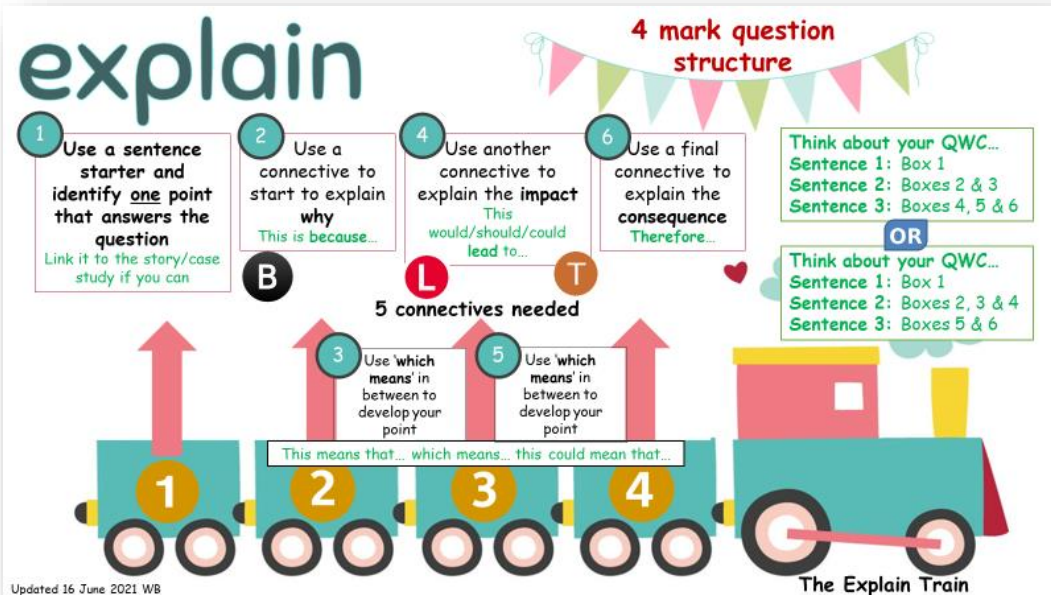




**Key words:** Describe, define, explain, calculate

### Using The Explain Train

When answering a 4 mark question, simply follow the instructions below from **1** to **6**. This will ensure that you have the right level of detail in your answer.



### 4 mark questions assess you on two 'skills'

**AO1: Ability to demonstrate knowledge**

You should aim to show this in parts 1-3 of your answer

**AO2: Ability to apply knowledge to a business context**

You should aim to show this in parts 4-6 of your answer

## Year 8 Exam Technique

How to answer each question	
DESCRIBE	<ul style="list-style-type: none"><li>State your point to show your understanding</li><li>State another point to show your understanding – it does not have to be linked to your first point – you could even give an example if you think that would help to get your point across</li><li>If you are describing a difference, make sure that you are comparing the same thing for both (if relevant) – use 'whereas' or 'whilst' in the middle to show that you are comparing</li></ul> <p>To get 2 marks, you need to show your understanding of the word/s in the question by giving 2 correct points about that word/s</p>
DEFINE	<ul style="list-style-type: none"><li>You don't need a sentence starter but you do need to start with the word that is being tested in the question</li><li>You then make your first point, concisely, showing that you know what the word means</li><li>You do not need to use any connectives but your second point, again, should be concise, showing that you know what the key word means – it should be a different point to the first one that you made</li></ul> <p>To get 2 marks, you need to show your understanding of the word in the question by giving 2 correct points about that word – it must be concise</p>
EXPLAIN	<p>No sentence starter is required</p> <ul style="list-style-type: none"><li>State your point/reason/advantage/disadvantage</li><li>Develop your reason by using 'this is because...' and 'which means...'</li></ul> <p>To get 2 marks, your first point needs to be clear (and correct) and it must follow with because (this helps you to explain) and another connective</p>
CALCULATE	<ul style="list-style-type: none"><li>There is a space for workings AND answer</li><li>You MUST show both (workings and answer) to get both marks</li><li>We cannot give you the formula that you need, you have to figure out which one you need to use (think about what you have learned in your Knowledge Checkers)</li><li>Read the questions carefully and check at the start of the calculation section in case there is any data there that you can use</li></ul>



## Health and Safety Rules:

- Do not enter the classroom or workshop without your teacher
- Store bags in the classroom to reduce trip hazards
- Tie hair back in the workshop
- Wear an apron in the workshop
- Machinery should only be used after instruction from the teacher
- Wear goggles on all machinery
- Only 1 person only per machine area (see yellow/black hazard lines on floor)
- Report any breakages to your teacher
- Return all equipment and tools after use
- Benches and floor **MUST** be left clean and tidy
- Brush areas carefully, reduce dust, **DO NOT BLOW!**
- Close vices **BUT NOT TIGHTENED**



**Report all breakages  
to the teacher**



## Injuries and accidents

- Minor injuries (cut, etc) need recording in the accident book
- If someone gets hurt, alert staff then stand still and wait for instructions



Pack practical work away into  
your practical folders and class  
box

Design folders go in their own  
class box

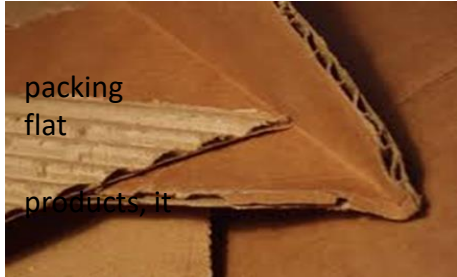






**Paper** is a thin material produced by pressing together moist fibres of cellulose pulp derived from wood, rags or grasses, and drying them into flexible sheets.

There are four main types of cardboard.



packing  
flat  
products, it

**Corrugated board**, which is typically used to make brown boxes. It contains a fluted corrugated sheet and one or two boards. It is made on "flute lamination machines" or "corrugators" and is used in transportation to protect

single layer of greyish cardboard, sometimes white fronted for printing purposes. It is used to make items such as cereal boxes, shoe boxes, and other packages.



**Boxboard** (also known as chipboard). It is a



**Foam board** is a lightweight and an easily cut material used for mounting of photographic prints, advertising and for making scale models.

Foam board consists of three layers, an inner layer of polystyrene or polyurethane foam that is clad on each side with a white card.



Grey board consist of glued layers of paper fibres with a smooth surface on both sides. Since it is made from recycled paper and is not bleached, the grey tones vary slightly from board to board.



Paper made out of plant like fibres was invented by the Chinese Cai Lun, who in 105 AD mixed textile fibres and fibres from the bark of the mulberry in water and produced sheets of paper from that.



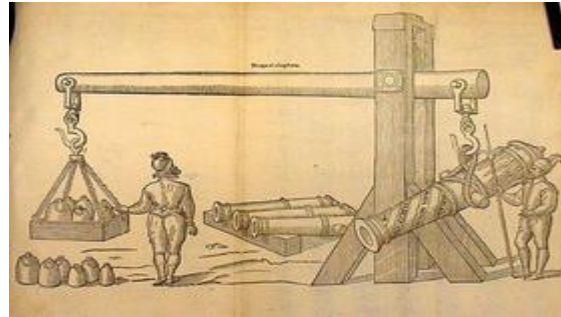
**Grey board** is used to describe a low grade, 100% recycled, grey coloured thick board used for rigid boxes, folders, calendars, display packaging and bookbinding.



A lever is a simple machine made of a rigid beam and a fulcrum. The effort (input force) and load (output force) are applied to either end of the beam. The fulcrum is the point on which the beam pivots. When an effort is applied to one end of the lever, the load lifts at the other end of the lever.



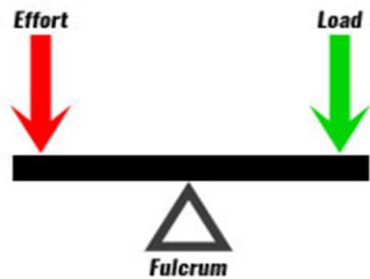
The earliest evidence of the mechanism of the lever dates back to over 5,000 years ago. It was used for the first time on a simple balance scale. A crane-like structure that we used a lever mechanism.



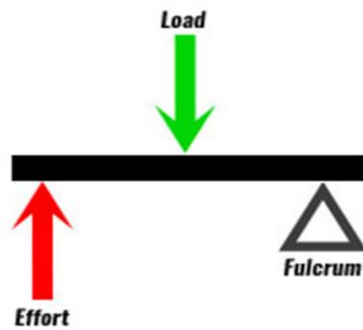
Archimedes, a Greek philosopher and inventor who lived in the third century C.E., is believed to have said, **“Give me a lever and a place to stand and I'll move the world.”** He may have been exaggerating a little, but the truth is that leverage makes moving anything much easier.



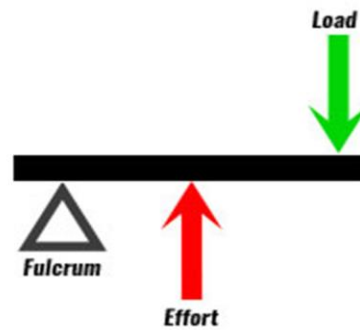
### 1st Class Lever



### 2nd Class Lever



### 3rd Class Lever

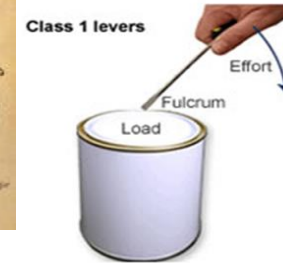


**There are three types of lever.**

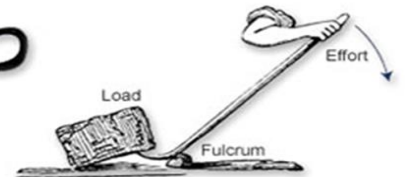
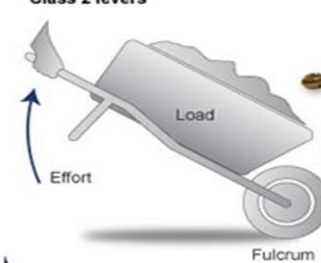
First class lever – the fulcrum is in the middle of the effort and the load.

Second class lever – the load is in the middle between the fulcrum and the effort.

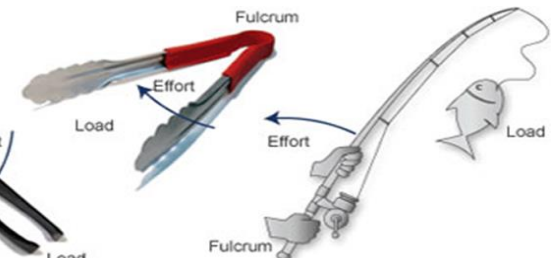
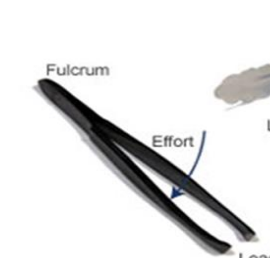
Third class lever – the effort is in the middle between the fulcrum and the load.



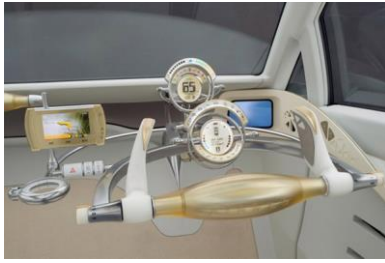
### Class 2 levers



### Class 3 levers







**S.C.A.M.P.E.R.** is a toolbox of creative design tools that can help you be more creative in your design thinking.

**S SUBSTITUTE:**  
Replace a thing, or concept with something else.

**C COMBINE:**  
Unite! What? Who? Ideas? Materials?

**A ADAPT:**  
Adjust to a new purpose. Re-shape? Tune-up?

**M MODIFY, MAGNIFY, MINIFY**  
Change the colour, sound, motion form, size.  
Make it larger, stronger, thicker, higher, longer.  
Make it smaller, lighter, slower, less frequent, reduce.

**P PUT TO ANOTHER USE:**  
Change when, where, location, time, or how to use it.

**E ELIMINATE:**  
Omit, get rid of, cut out, simplify, weed out...

**R REARRANGE, REVERSE**  
Change the order, sequence, pattern, layout, plan, scheme, regroup, redistribute...



A **substitute** for a steering wheel

**Combining** an inspiration and a product

**Adapting** a new or improved product for a different client or situation

**Magnify**, sometimes bigger is better.

**Minify**, sometimes products can get smaller

**Modify**, sometimes we can change materials

**Put to another use**, often referred to as 'upcycling'

**Eliminate**, what can we get rid of? Simplify.

**Rearranging**, can make a product more interesting.

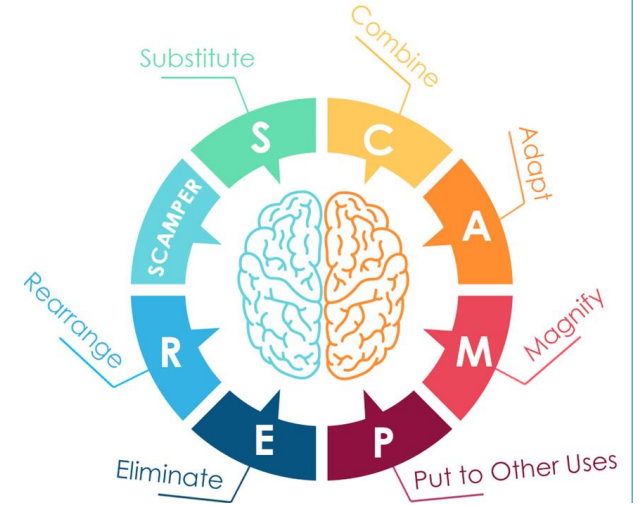
**Reverse**, seeing the foreground and the back ground



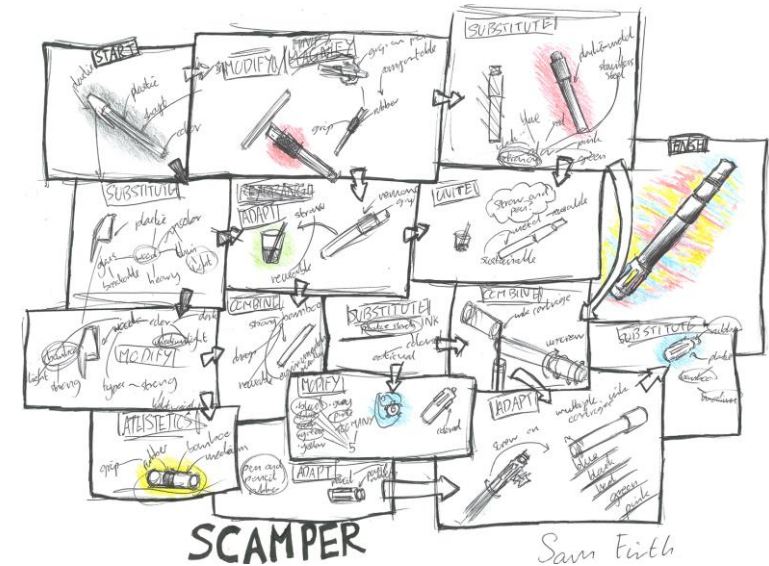
man



D&T Year 9 / S.C.A.M.P.E.R



Example of a S.C.A.M.P.E.R. inspired design page







## Scales of Production

One-Off Production

Batch Production

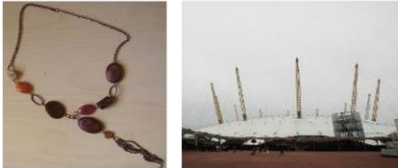
Mass Production

Continuous Production

### One-off production

One-off production is the manufacture of a **single product**.

Each product is unique and made for a specific client.



The Millennium Dome and hand crafted jewellery are both examples of one-off items.

When you make things in school you are usually involved in the one-off production of a **PROTOTYPE**. However, Prototypes are made to test and evaluate products before they are produced in number for sale to the public.

### Batch production

- A **batch** may be as few as four identical dining chairs or as many as several thousand.
- Batches may be made at specific times of the year, for example, Christmas trees or Olympic medals. (Moulds are made, the work is done, the batch made and the moulds then stored until the next time the product is required)
- The machines are used to produce many different products.
- Products are less **expensive** than one-off items as less skilled work is required.



Batch production involves the manufacture of a **fixed number** of **identical** products, for example, a batch of 60 matching chairs for a restaurant.

### Continuous production

**Continuous production** is similar to mass production, however, the production line runs continuously for extended periods of time with no interruptions.

**24 hours per day, 365 days per year.**



Examples of products: oil refining, chemicals, pharmaceutical products, bread, paper.

### Mass production

- Mass production is the manufacture of a large number of products.
- Mass production, processes are normally automated, and expensive machinery and tools are used.
- Set-up costs are often high. However, because a large number of items are manufactured, the cost per item can be lower than in batch production.



Everyday items like disposable cups, plastic bags, cars and newspapers are mass produced

Tolerance is the **margin or error** allowed for a measurement of a part or product.

Tolerances are usually given as an **upper and lower limit**, e.g. 23mm ( 2 )

$\pm$

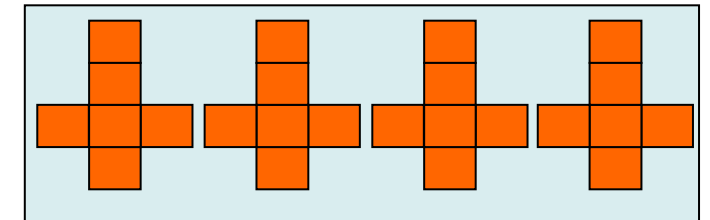
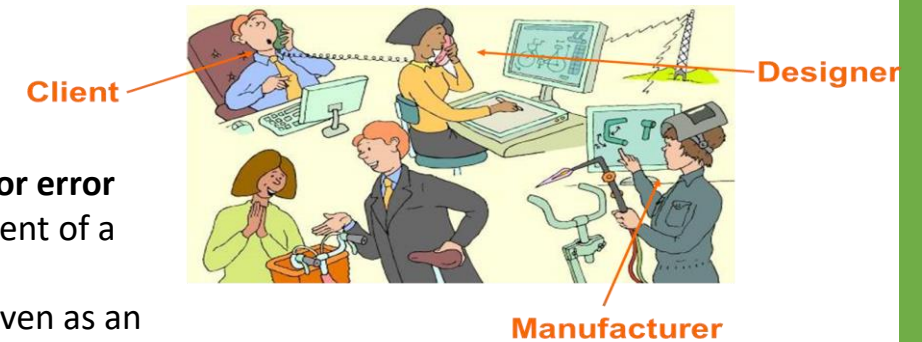
Quality control is the **checks** that are carried out on a materials, products or component parts **throughout production** to make sure **standards are met**.

Limit gauges  
Go / No Go

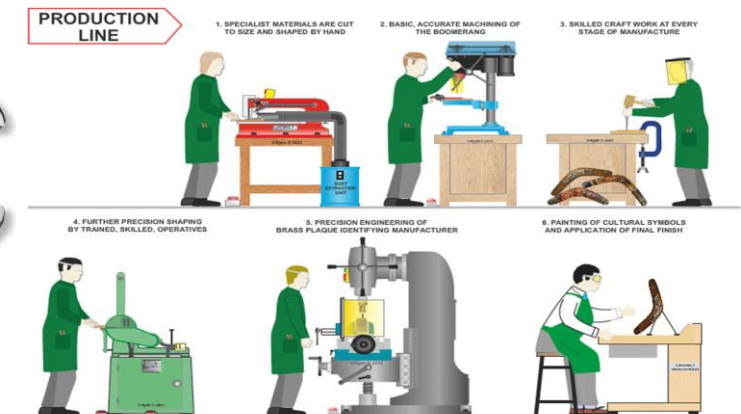


Vernier Callipers

## The world of design and manufacture



**Tessellation: reducing waste**



DRAMA

FOOD



YEAR 9 FRENCH: HALF TERM 1:  
Talking about your likes and dislikes:  
extra-curricular clubs, clothes, friends  
Talking about your last birthday

**Present tense endings (regular –ER verbs)**

je danse	nous dans
tu dances	vous dansez
il/ elle danse	ils/elles dansent

## What do 'good' sentences look like?

- Je joue aux cartes dans ma chambre quand je suis seul(e).
- Je ne danse jamais au collège car je trouve la danse trop difficile.
- Samedi, j'ai fêté mon anniversaire. J'ai invité mes amis chez moi.
- Le weekend prochain, je vais porter un costume bleu.



Year 9 Half term 2 and 3		Knowledge Organiser- (French only groups)	
<p><b>Present tense verbs</b></p> <p><b>je veux</b> I want</p> <p><b>je lave</b> I wash</p> <p><b>je gagne</b> I earn</p> <p><b>Je fais</b> I do</p> <p><b>On peut</b> one can</p>	<p><b>Jobs- je veux être...</b></p> <p><b>scientifique</b> scientist</p> <p><b>pilote</b> pilot</p> <p><b>ingénieur(e)</b> engineer</p> <p><b>danseur/danseuse</b> dancer</p> <p><b>instituteur/ institutrice</b> primary school teacher</p> <p><b>infirmier/ infirmière</b> nurse</p> <p><b>policier/policière</b> police</p> <p><b>mécanicien/ mécanicienne</b> mechanic</p> <p><b>architecte</b> architect</p>		
<p><b>Future tense verbs</b></p> <p><b>je vais ranger</b> I'm going to tidy</p> <p><b>Je vais aider</b> I'm going to help</p> <p><b>Je vais habiter</b> I'm going to live</p> <p><b>je vais travailler</b> I'm going to work</p> <p><b>Je vais gagner</b> I'm going to earn</p> <p><b>je ne vais pas travailler</b> I'm not going to work</p>	<p><b>Past tense</b></p> <p><b>J'ai rangé</b> I tidied</p> <p><b>J'ai préparé</b> I prepared</p> <p><b>J'ai travaillé</b> I worked</p> <p><b>j'ai joué</b> I played</p> <p><b>J'ai aidé</b> I helped</p> <p><b>Je suis allé (e)</b> I went</p>	<ul style="list-style-type: none"><li>Je veux= I want</li></ul> <ul style="list-style-type: none"><li>Past tense eg j'ai travaillé</li></ul> <div>CHALLENGE</div> <ul style="list-style-type: none"><li>Negative past and future tense verbs</li><li>A variety of adjectives to give opinions</li></ul> <div>GENIUS</div> <ul style="list-style-type: none"><li>Use of different pronouns with pouvoir, vouloir and devoir</li></ul>	<ul style="list-style-type: none"><li>on peut= one can/ people can</li></ul> <p>Future tense eg je vais travailler</p> <p>Use sequencers to extend sentences</p> <p>Use time expressions to extend sentences</p> <p>Use of different pronouns in the future tense.</p>
<p><b>Pouvoir</b></p> <p><b>je peux</b> I can</p> <p><b>tu peux</b> you can</p> <p><b>il/elle peut</b> he/she can</p> <p><b>nous pouvons</b> we can</p> <p><b>vous pouvez</b> you can</p> <p><b>ils/elles peuvent</b> they can</p> <p><b>Vouloir</b></p> <p><b>je veux</b> I want</p> <p><b>tu veux</b> you want</p> <p><b>il/elle veut</b> he/she wants</p> <p><b>nous voulons</b> we want</p> <p><b>vous voulez</b> you want</p> <p><b>ils/ elles veulent</b> they want</p>	<p><b>C'EST= IT IS</b></p> <p><b>amusant</b> fun</p> <p><b>varié</b> varied</p> <p><b>créatif</b> creative</p> <p><b>dangereux</b> dangerous</p> <p><b>fatigant</b> tiring</p> <p><b>intéressant</b> interesting</p> <p><b>passionnant</b> exciting</p> <p><b>utile</b> useful</p> <p><b>Sequencers</b></p> <p><b>D'abord</b> firstly</p> <p><b>Ensuite</b> next</p> <p><b>Après</b> afterwards</p> <p><b>Finalement/ enfin</b> finally</p>	<p><b>YEAR 9 FRENCH: HALF TERM 2/3:</b></p> <ul style="list-style-type: none"><li>Talking about what you'd like to do when you are older</li><li>Talking about what jobs you've done in the past</li></ul> <p>What do 'good' sentences look like?</p> <ul style="list-style-type: none"><li>À l'avenir, je veux être architecte car c'est créatif.</li><li>Dans dix ans, je <b>vais</b> habiter en Asie et je <b>vais</b> gagner beaucoup d'argent</li><li>Je <b>vais</b> travailler comme mécanicien mais je <b>ne vais pas</b> habiter avec mes parents.</li></ul>	
		<p><b>Future tense</b></p> <p><b>Je vais habiter</b></p> <p><b>Tu vas habiter</b></p> <p><b>Il/elle va habiter</b></p> <p><b>nous allons habiter</b></p> <p><b>vous allez habiter</b></p> <p><b>ils/elles vont habiter</b></p>	





## Year 9 French: GCSE Module 1 Intro

### My personal world

#### My family

mon père	my father
mon beau-père	my stepdad
mon grand-père	my grandad
mon frère	my brother
mon demi-frère	my half brother
mon fils	my son
mon mari	my husband
mon oncle	my uncle
ma famille	my family
ma mère	my mother
ma grand-mère	my grandma
ma belle-mère	my step mum
ma soeur	my sister
ma demi-soeur	my half sister
ma tante	my auntie
mes parents	my parents
mes grandparents	my grandparents

#### Places to go

au magasin	to the shop
au centre commercial	to the shopping centre
au centre de loisirs	to the leisure centre
À la bibliothèque	to the library
À la patinoire	to the ice rink
À la boîte de nuit	to the night club

#### Adjectives

agaçant (e)	annoying
bavard (e)	chatty
content (e)	happy
paresseux/ paresseuse	lazy
marrant (e)	funny
méchant (e)	nasty
bête	stupid
triste	sad
poli (e)	polite
gentil (le)	kind

#### Appearance

les cheveux longs	long hair
courts	short
noirs	black
roux	red/ ginger
marron	brown
frisés	curly
bouclés	curly
raides	straight
les yeux verts	green eyes
les lunettes	glasses
une barbe	a beard

#### Sequencers

de temps en temps	sometimes
parfois	occasionally
toujours	always
d'habitude	usually

#### avoir= to have

j'ai	I have
tu as	you have
il/ elle a	he/she has
nous avons	we have
vous avez	you have
ils/ elles ont	they have

#### être= to be

je suis	I am
tu es	you are
il/elle est	he/she is
nous sommes	we are
vous êtes	you are
ils/elles sont	they are

#### aller= to go

je vais	I go
tu vas	you go
il/elle va	he/she goes
nous allons	we go
vous allez	you go
ils/elles vont	they go

je suis= I am

my= mon (m)/ ma (f)/ mes (pl)

use a variety of adjectives with the correct position and ending

use past, present and future tenses

j'ai= I have

je vais= I go/ I'm going

use frequency expressions to extend sentences

use different pronouns eg il/ elle/ nous to give more info

#### YEAR 9 FRENCH: HALF TERM 4:

- talking about what you, your family and your friends are like (appearance and personality)
- talking about where you go, where you've been & where you are going to go



#### What do 'good' sentences look like?

- **J'ai** une grande famille: **j'ai** 5 frères **mais je voudrais** une soeur.
- Mon frère **est** sympa mais, **à mon avis**, il est **trop** paresseux.
- Le samedi soir, **je vais** parfois au théâtre avec mes grandparents.

#### Present

je mange

je porte

je vais

#### Past

j'ai mangé

j'ai porté

je suis allé (e)

#### Near future

je vais manger

je vais porter

je vais aller



### Hobbies= mes passe-temps

je fais du footing	I do jogging
je fais du vélo	I do biking
je fais de l'équitation	I do horseriding
je fais de la natation	I do swimming
je fais de l'escalade	I do climbing
Nous faisons	we do
des randonnées	hiking
de l'escrime	fencing
de la musculation	weight-lifting
de la planche à voile	wind surfing
du patinage	ice skating
Je joue	I play
du piano	the piano
du saxophone	the saxophone
du violon	the violin
de la batterie	the drums
de la guitare	the guitar

### Past tense

j'ai regardé	I watched
j'ai écouté	I listened
j'ai téléchargé	I downloaded
j'ai parlé	I spoke
j'ai chanté	I sang
j'ai lu	I read
je suis allé(e)	I went
j'ai fait	I did

Je n'ai pas écouté I didn't listen

C'est= it is	c'était= it was	ce sera= it will be
assez/ complètement/ un peu	quite/ completely/ a bit	
amusant/ cher / génial	fun/ expensive/ great	
parfait/ passionnant/ sympa	perfect/ exciting/ nice	

### More hobbies

je crée	I create
j'écoute	I listen
je joue	I play
je télécharge	I download
je partage	I share
je parle	I talk
je chante	I sing
j'achète	I buy
je lis	I read

### TV programmes and films

je regarde	I watch
un dessin animé	a cartoon
un feuilleton	a soap
une émission de sport	a sports programme
une émission de cuisine	
les infos	the news
en streaming	streaming
des clips/ vidéos	

### Frequency

tous les jours	everyday
tous les soirs	every evening
tous les samedis	
	every Saturday
parfois	occasionally
toujours	always
d'habitude	usually
une fois par semaine	once a week
deux fois par semaine	twice a week

## Year 9 French: GCSE Module 2 Intro Lifestyle and wellbeing

je fais= I do	Je joue= I play
Other present tense verbs eg Je regarde, je joue, je chante	je vais= I go/ I'm going
Add opinions, using parce que/ car (because)	use frequency expressions to extend sentences
use past, present and future tenses	use different pronouns eg il/ elle/ nous to give more info

### YEAR 9 FRENCH: HALF TERM 5:

- talking about what you do in your free time
- talking about what you've done recently



### What do 'good' sentences look like?

- Je fais beaucoup de sport: j'aime les sports d'équipe mais je déteste la natation, c'est cher!
- Je joue parfois au tennis mais, à mon avis, c'est trop ennuyeux.
- Le samedi soir, je ne fais pas de sport: je vais au cinéma avec mes copains.

### faire (to do/make)

je fais (I do/make)  
tu fais  
il/elle/on fait  
nous faisons  
vous faites  
ils/elles font









Present	Past	Near future
je mange	j'ai mangé	je vais manger
je porte	j'ai porté	je vais porter
je vais	je suis allé (e)	je vais aller





## Year 9 / The First World War

### Main Participating Countries

ALLIED POWERS			CENTRAL POWERS		
Country	Date Joined	Death Toll	Country	Date Joined	Death Toll
FRANCE 	3 <sup>rd</sup> Aug, 1914	approx. 1,700,000 4.3% of population in 1914	GERMAN EMPIRE 	1 <sup>st</sup> Aug, 1914	approx. 2,500,000 4% of population in 1914
BRITISH EMPIRE 	4 <sup>th</sup> Aug, 1914	approx. 900,000 2% of population in 1914	AUSTRIA-HUNGARY 	28 <sup>th</sup> Jul, 1914	approx. 1,900,000 3.7% of population in 1914
RUSSIA 	1 <sup>st</sup> Aug, 1914	approx. 3,100,000 13.7% of population in 1914	OTTOMAN EMPIRE 	31 <sup>st</sup> Oct, 1914	approx. 3,000,000 14% of population in 1914
USA 	6 <sup>th</sup> Apr, 1917	117,466 0.13% of population in 1914	BULGARIA 	12 <sup>th</sup> Oct, 1915	187,500 3.4% of population in 1914

### Key People

**Archduke Franz Ferdinand** – (1863-1914) was a high-ranking member of the Habsburg Dynasty, who was the presumed heir to the Austro-Hungarian throne. As was customary of Habsburg men, he had begun his military career young (aged just 12). He rose through the ranks quickly, becoming inspector general of the armed forces in 1913. This role brought him to Sarajevo in 1914, where he was assassinated alongside his wife, Sophie. The perpetrator was Gavrilo Princip, a member of the Serbian Black Hand secret society. Austria-Hungary's subsequent declaration of war on Serbia prompted a chain of events that led to World War I.



**Woodrow Wilson** – (1856-1924) was the 28<sup>th</sup> President of the United States, serving between 1913 and 1921. At the outbreak of World War I, in 1914, the US was neutral, but remained an important supplier to Great Britain and the Allies. However, after 2 1/2 years of war, America declared war on Germany on 6<sup>th</sup> April 1917, after Germany continued to attack neutral boats and ships. In early 1918, Wilson gave his outline of 14 points that he thought would bring lasting peace. This influenced the eventual Treaty of Versailles. He received the 1919 Nobel Peace Prize for his efforts.



**Tsar Nicholas II** – (1868-1918) was the last Emperor of Russia, ruling from 1894 until his forced abdication on 2<sup>nd</sup> March 1917. Throughout his reign, Russia fell from being one of the foremost great powers of the world, to economic and military collapse. These factors, coupled with the perception of Nicholas' weak leadership, led to the events of the Russian Revolution, Nicholas' abdication, and his eventual execution. The Russians' catastrophic losses forced them to leave the war effort before the end of the war, with Russia eventually becoming a part of the communist Soviet Union.



**Kaiser Wilhelm II** – (1859-1941) was the last German Emperor (Kaiser), reigning between 15<sup>th</sup> June 1888 until 9<sup>th</sup> November 1918. Wilhelm was a grandchild of Queen Victoria, and was related to many of the monarchs of Europe, including George V of the UK and Nicholas II of Russia. His support for Austria-Hungary in the crisis of July 1914 was a leading factor in the outbreak of World War I. Many sources suggest that he was not respected as a leader, and as a result, his two leading generals Paul von Hindenburg and Erich Ludendorff dictated most of German policy and strategy during the war. He abdicated in 1918, and fled to the Netherlands.














**David Lloyd George** – (1863-1945) was the Prime Minister of the United Kingdom throughout the latter part of the war effort, and in the years following the war. He was integral to reorganising the Allied military strategy to work more cohesively under one military commander. Lloyd George also played an important role after the war, being one of the 'Big Three' (alongside the leaders of France and the US) to negotiate the Treaty of Versailles with Germany. He represented the halfway point between the harsh demands of Clemenceau and the more lenient requests of Wilson.



**Wilfred Owen** – (1893-1918) Wilfred Edward Salter Owen was a British poet and soldier. He was one of the most prominent World War I poets, detailing the horrors of trench warfare in a similar style to his mentor: Siegfried Sassoon. His poetry brought a sense of realism to public perceptions of war, in stark contrast to the earlier works of poets such as Rupert Brooke. He composed almost all of his poetry in just over a year, from August 1917 to September 1918. Among the most famous are *Dulce et Decorum est* and *Anthem for Doomed Youth*. He was killed one week before the end of the war.



### Major Events

Event	Image	Description	Date/s	Fact
Entangling Alliances		In the early 20 <sup>th</sup> Century, there was no one dominating European country. Consequently, each of the most powerful countries moved to make alliances with one another. Military defensive pacts were held between the allied powers of France, Great Britain, Russia and others, whilst an opposing central alliance was formed including Germany and Austria-Hungary.	1879-1914	Defensive pacts stated that participating countries must aid an ally under attack.
Assassination of Archduke Franz Ferdinand		Archduke Franz Ferdinand, the heir to the Austro-Hungarian throne, and his wife Sophie, were assassinated by Gavrilo Princip, a member of the Serbian Black Hand Society. The aim of the assassination was to make the South Slav provinces a part of Yugoslavia.	28 <sup>th</sup> June 1914	Earlier, another assassination attempt against the Archduke had failed.
July Crisis		After Serbia's failure to make amends for the assassination, Austria-Hungary declared war on them. Russia (in pact with Serbia) declares war on Austria-Hungary, before Germany consequently declares war on Russia. By the 4 <sup>th</sup> August, all of the European powers from the Allied and Central Powers are at war.	July-August 1914	Britain were the last of the powers to declare war, on 4 <sup>th</sup> August 1914.
Trench Warfare	 	To prevent enemy advances, both sides built large trenches, which stretched from the North Sea, through Belgium and France. As a result, neither side made much ground from late 1914 until early 1918. Attacks involved going across No Man's Land (in the middle) where attackers were open to machine gun fire, mines, and shells. Casualties were huge. Life in the trenches were awful, with diseases like trench foot rife. Mustard gas was a war agent used, causing blisters on skin and lungs. It caused excruciating pain and often death.	From September 1914 until November 1918 (the end of the war).	The enemy trenches were generally 50 to 250 metres apart. In between, No Man's Land was littered with barbed wire, mines, and bodies.
Gallipoli Campaign		The Gallipoli campaign was an unsuccessful attempt by the Allies to control the sea route from Europe to Russia. It included a failed naval attack in February 1915, and a major land invasion on 25 <sup>th</sup> April, which resulted in major losses to the Ottoman Empire.	19 <sup>th</sup> February 1915 – 9 <sup>th</sup> January 1916	The Allies eventually evacuated in Dec 1915/ Jan 1916.
Battle of the Somme		The Battle of the Somme was the largest battle of World War I on the Western Front. More than 3 million fought in the battle, with more than 1 million killed or injured. At the end of the battle, the Allies had advanced 6km.	1 <sup>st</sup> July 1916 – 18 <sup>th</sup> November 1916	The battle is known for being the first use of the tank.
America Declares War		President Woodrow Wilson declared war on Germany, citing Germany's violation of its pledge to suspend unrestricted German warfare in the Northern Atlantic and Mediterranean. This had caused sinking of US ships.	6 <sup>th</sup> April 1917	The arrival of fresh US troops helped to turn the war.
Second Battle of Marne		The Second Battle of Marne was the last major German offensive in the war. They were defeated as the Allies counter-attacked. This triggered the start of the Allied advance which led to the Armistice 100 days later.	15 <sup>th</sup> July – 6 <sup>th</sup> August 1918	There were 168,000 German casualties.
Armistice of 11 <sup>th</sup> November		The Armistice of the 11 <sup>th</sup> November 1918 signalled the end of the fighting between the Allies and Germany. Previous armistices had already been agreed with the other central powers. It came into force at 11am. It marked a victory for the Allies and defeat for Germany although was not officially a German surrender.	11 <sup>th</sup> November 1918	The fighting ended on the 11 <sup>th</sup> hour of the 11 <sup>th</sup> day of the 11 <sup>th</sup> month in 1918.
The Treaty of Versailles		The Treaty of Versailles was the most important of the peace treaties bringing to an end World War I, ending conflict between Germany and the Allied Powers. It was signed in Versailles, but mostly negotiated in Paris. The most contentious of the requirements in the peace treaty was that Germany had to accept responsibility for all of the loss and damage in the war. They had to make massive repayments to other countries.	28 <sup>th</sup> June 1919	Many suggest that the treaty was too harsh on Germany, and created tensions which partially escalated World War II.

### Timeline of Major Events

28 Jun, 1914 – Archduke Franz Ferdinand is killed by a Serbian	28 Jul 1914 – Austria-Hungary declares war on Serbia. Russia steps in to help Serbia	Aug 1-4 1914 – Keeping promises to their allies, Germany, France, and Britain all enter the war.	Sep 5-12 1914 – The advancing German army is stopped by British and French forces before Paris. 4 years of trench warfare begins.	11 Nov 1914 – The Ottoman Empire declares war on the Allies.	25 Apr 1915 – The Ottomans defeat the Allies at the Battle of Gallipoli.	1 Jul 1916 – The Battle of the Somme begins. Over 1 million soldiers will be killed or wounded	8 Mar 1917 – The Russian Revolution begins. Tsar Nicholas II is removed from power.	6 Apr 1917 – The U.S enters the war, declaring war on Germany.	15 Jul 1918 – The Allies decisively win at the Second Battle of Marne.	11 Nov 1918 – Armistice signed. The fighting ends.
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Learning objective: To understand chronology, sources and factors through the history of the interwar years between 1918 – 1939.

**What do I need to know about the end of World War I?**

- What factors caused the German defeat at the end of the War.



**What do I need to know about the Treaty of Versailles?**

- Why the Treaty of Versailles was signed by the 'Big Three.'
- What the Treaty was and what clauses were in it.
- How it impacted the winners and losers of World War I.



**What do I need to know about life for ordinary people in the 1920s?**

- What life was like in different countries after World War I.
- How women began to gain greater rights during and after the War.
- What life was like in America during the 'Roaring Twenties'.



**KEYWORDS:**

Chronology = events put in the order that they happened.  
Sources = evidence from the past.

Interpretations = a person's opinion on a historical event.

**Key events/people:**

The United States  
The Treaty of Versailles  
Reparations  
Demilitarisation  
War Guilt  
The Suffragettes  
Adolf Hitler

1917



America enters World War I

1918



The War comes to an end.  
Fighting stops on all fronts.

1919



The Treaty of Versailles is signed.

1928



Women gain the vote in the UK.



### What first-order concepts do I need to learn below?

*Hint: remember! A first-order concept is a word historians use to describe facts related to events.*

#### ➤ **Facts on the end of World War I:**

- World War I seemed to be slowing down by 1918. The Russian Royal Family of Tsars had been assassinated by left-wing Bolsheviks and Russia pulled back from the fight on the Eastern Front.
- The Germans could now focus all of their efforts on France and Britain. It looked like they were going to win.
- That was until German U-Boats began attacking American ships in the Atlantic. When the US joined the fight, they ended it through sheer numbers, the size of their armies and raw economic power.

#### ➤ **Facts on the Treaty of Versailles:**

- Germany surrendered in 1918, when the Kaiser, their leader, was forced to abdicate (step down).
- The 'Big Three,' the leaders who led the victorious Britain, America and France, forced Germany to sign a Treaty (agreement) at the Versailles Palace in France. In it, they outlined terms that offended Germany – such as high reparation repayments, demilitarisation, and accepting war-guilt.

#### ➤ **Facts on the life of ordinary people in the Inter-War Years:**

- Different countries were affected in different ways after World War I.
- Britain had lost most of its empire, and it's people were exhausted. Many returned home with lifelong trauma. The women of Britain had spent years fighting for the vote – especially the Suffragettes.
- In America, they experienced growth and prosperity in the 'Roaring Twenties' – particularly the gangsters and bootleggers who profiteered greatly following the Prohibition of Alcohol.

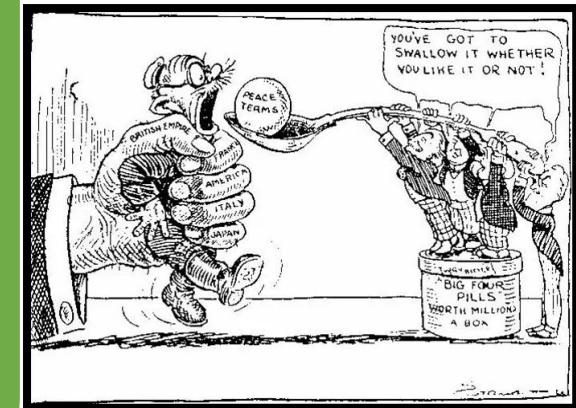
### What second-order concepts do I need to learn below?

*Hint: remember! A 'second-order concept' is a phrase historians use to describe the history skills that are used in history – like putting events in chronological order, or analysing sources!*

- Sources are pieces of evidence historians use to find out about the past. Primary sources, like the cartoon aside, are seen as useful as they give a detailed insight into peoples opinions at the time. Secondary sources are seen as more reliable though, as they are not subject to *as much* bias.

### Look to the past:

Below is a primary source:  
a political newspaper  
cartoon showing Germany  
being force fed the terms of  
the Treaty of Versailles.  
Which parts of the source  
support this theory?







# World War II

Was Britain right to fight in the Second World war?



DEMOCRACY



POWER



EMPIRE



Great Britain

United States of America

Russia

France

Allied Countries



Italy

Germany

Japan

Axis Countries



After the First World War, Germany were forced to sign the **Treaty of Versailles**, which left them with very little. They were unhappy and listened to **Adolf Hitler** when he wanted to make Germany strong again.

**Nazi Germany** invaded Poland in 1939 and Britain responded by declaring war. Many other countries were invaded by Nazi Germany. Over several years, Britain, USA and Russia, fought back, successfully completing the 'D-Day' landing back in Europe in June 1944 and pushing back German troops until they surrendered in **May 1945**. Japan continued to fight until they surrendered in September 1945.

British civilians suffered during the war. They were constantly bombed during the 'Blitz', food was **rationed** and children were **evacuated** to the country for protection. **Women** played a new role in society as they filled gaps left by the men who went to fight in the army.

In Europe, Hitler and Nazi Germany continued to *discriminate* and *persecute* the Jewish population, leading to the atrocious events of the **Holocaust**. Many Jewish people, such as **Anne Frank**, attempted to hide in safety.

## Key Vocabulary

- Anti-Semitism** Holding views that discriminate against Jewish people
- Blitz** The bombing of areas of Britain, mainly London, from German Aircraft.
- Blackout** Town or cities were made dark so they couldn't be seen from the sky
- Evacuee** Children removed from dangerous areas to safer, rural places
- Fascism** A belief system, against democracy and for a powerful armed state.
- Kristallnacht** Also know as 'The Night of the Broken Glass' was a campaign of destroying Jewish businesses, buildings and synagogues
- Holocaust** The mass killing of Jews in concentration camps
- Lebensraum** Nazi policy meaning 'living space' – used to invade other countries
- Luftwaffe** The German Air-Force
- Propaganda** Information spread to influence people
- Rationing** The set amount of food that each person/ family was allowed
- Reparation payments** The financial payments made to the Allied forces by the Germans, agreed by the Treaty of Versailles at the end of the First World War.
- Total War** The idea that war involved civilians as much as soldiers and politicians. Everyone was affected.

## SUMMARY





Learning objective: To understand chronology, sources and factors through the history of the persecution of minorities in Europe and the Holocaust.

**What do I need to know about the life of Jews before the Holocaust?**

- What life was like for Jews before the Nazis ruled Europe.
- What life was like for Jews during the Nazis rule of Europe.
- What initial anti-Jewish laws came into effect in 1935.

**What do I need to know about the initial Nazi persecution of Jews?**

- What the ghettos were and how they functioned.
- What happened during Kristallnacht.
- Who the Death Squads were and why the killing process changed.

**What do I need to know about the 'Final Solution'?**

- What the difference was between concentration and death camps.
- What life – and death – was like in the death camps.
- What occurred when the camps were liberated by the Allies.
- Why we should remember the Holocaust and how genocides still occur.

**KEYWORDS:**

Chronology = events put in the order that they happened.

Sources = evidence from the past.

Interpretations = a persons opinion on a historical event.

**Key events/people:**

Minorities

Jewish anti-Semitism

Persecution

Kristallnacht

Ghettos

Concentration and Death Camps

SS Death Squads

The Holocaust

1935



The Nuremberg Laws come into effect.

1936



Ghettos and concentration camps are used to persecute minorities.

1941

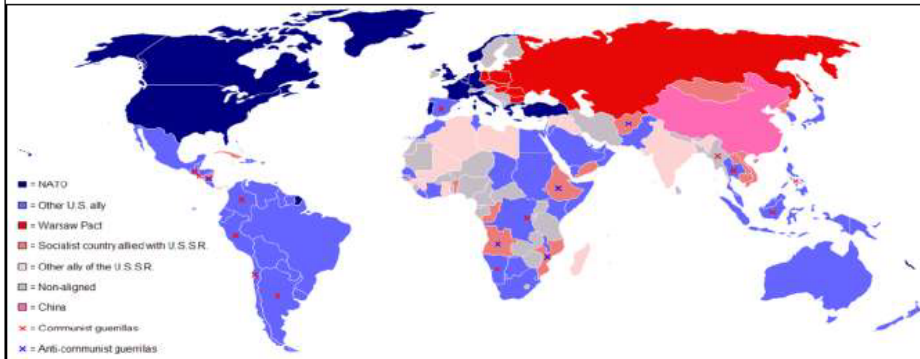


Auschwitz, and many other death camps, begin using Zyklon B – a gas – to kill inmates on an industrial scale.



## Overview and Map

The Cold War was a long period of open, yet restrained, tension between the democracies of the western world and the communist countries of the east. The democratic west was led by the United States, whilst the communist east was spear-headed by the Soviet Union – the two world superpowers at the time. Whilst the two superpowers never directly declared war on one another, they fought indirectly via proxy wars, an arms race, and the space race, in order to gain political and ideological dominance. The map below shows the extent of their alliances in 1980, towards the end of the Cold War.



## Key People

**Dwight Eisenhower** – (1890-1969) Dwight Eisenhower was a five star general of the US army and supreme commander of the Allied forces in western Europe, before becoming the 34<sup>th</sup> President of the United States. As President, he articulated his views on the 'Domino Theory', suggesting that Communism should be stopped before it spread. Whilst he ended the Korean War, he was the first President to send troops to Vietnam, and made preparations to make interventions in Cuba. He made efforts to limit nuclear weapons proliferation, but these were unsuccessful.



**Joseph Stalin** – (1878-1953) was the Communist leader/ dictator of the USSR during WWII. After the death of the Communist Leader Lenin, Stalin won a vicious grapple for power before eventually establishing himself as a totalitarian dictator. His own policies became known as 'Stalinism.' After World War II, Stalin became committed to taking both political and ideological control of eastern European states, believing this to be integral to creating a buffer between the democratic West. This quest for domination is seen as one of the predominant factors in starting the Cold War.



**John F. Kennedy** – (1917-1963) Commonly known as JFK, John F. Kennedy was the 35<sup>th</sup> President of the United States, who served between 1961-1963 at the height of the Cold War. The majority of his presidency involved managing relations with the Soviet Union. He authorized the failed Bay of Pigs invasion, but subsequently helped to diffuse the Cuban Missile Crisis, and made a famous speech about the Berlin Wall as being symbolic of Communist failure. He also expanded the US space programme. He was assassinated in 1963.



**Nikita Khrushchev** – (1894-1971) Nikita Khrushchev was the successor to Joseph Stalin, who led the Soviet Union between 1953 and 1964 – the tensest years of the Cold War. He was more liberal than his predecessor in domestic policy, and also cut Soviet forces. However, he built up the number of nuclear missiles. He was involved in the Cuban Missile Crisis, when nuclear war between the US and Soviet Union seemed to be imminent. In 1964, he was removed by his colleagues, replaced by Leonid Brezhnev.



**Sir Winston Churchill** – (1874-1965) was a British politician who served as the Prime Minister between 1940 and 1945 and again from 1951 to 1955. He took over after a disastrous start to the war in which Nazi Germany conquered much of Europe. The manner in which he forged crucial alliances with countries like the US and Russia undoubtedly aided the Allies victory. After the war, he was one of the first public figures to hypothesise about the significant dangers of an 'Iron Curtain' descending across Europe.



**Fidel Castro** – (1926-2016) Fidel Castro was a Cuban communist, revolutionary, and politician, who helped to lead the Communist revolution in Cuba. He was allied with the Soviet Union, and caused grave concern to the US as communism was now in the Americas. The CIA took charge of trying to overthrow Castro's government, using Cuban exiles, but got their strategy disastrously wrong in the Bay of Pigs invasion. Castro became a hero for his victory, and stayed in power right up until 2011.



## Major Events

Event	Image	Description	Date/s	Fact
The Truman Doctrine		The Truman Doctrine was an American foreign policy created with the aim of countering Soviet geopolitical expansion. Announced to congress by President Harry S. Truman, the doctrine alleged that communist totalitarian regimes represented a significant threat to international peace. As a result, American support would be provided to countries threatened by Soviet communism.	12 <sup>th</sup> March 1947	The Doctrine led to the formation of NATO, an alliance that is still in effect.
Berlin Blockade		During multinational occupation of post-World War II Germany, the Soviet Union blocked the Western Allies' railway, road and canal access to parts of Berlin under western control, in response to western introduction of the Deutsche mark. Via the 'Berlin Airlift', Allied planes were able to deliver vital supplies to Berliners.	24 <sup>th</sup> June 1948 – 12 <sup>th</sup> May 1949	It proved to be a PR disaster for Stalin, who had to remove the blockade in May 1949.
The Korean War		As a result of the Cold War, Korea had split into two states, with both claiming to be the sole legitimate government of all of Korea. This broke into war when communist North Korea (aided by Russia and China) invaded the South (backed by USA). The war eventually ended in stalemate. The country remained divided.	25 <sup>th</sup> June 1950 – 27 <sup>th</sup> July 1953	As no peace treaty was signed, the countries are still technically at war!
The Vietnam War		Vietnam was split – the North (backed Soviet Union) and South (backed by USA) engaged in a war lasting over 19 years. It also sprouted the Laotian and Cambodian Civil Wars, and resulted in all 3 states becoming Communist. It was an extremely deadly war, with around 2 million innocent civilians believed to have perished.	1 <sup>st</sup> November 1955 – 30 <sup>th</sup> April 1975	Images of napalm-burnt villagers turned public opinion against the war in the USA.
The Space Race		The USA and USSR intensified competition for spaceflight superiority. The race had origins in the nuclear arms race, in that successes demonstrated technological strength. USSR completed the first manned spaceflight, whilst USA were the first to send man to the moon.	2 <sup>nd</sup> August 1955 – c.1975	USSR launched the first satellite into space on 4 <sup>th</sup> Oct 1957 – <i>Sputnik 1</i> .
U-2 Plane Incident		A United States U-2 spyplane was shot down by the Soviet Air Defence Forces, whilst photographing targeted Soviet sites whilst deep into Soviet territory. Embarrassingly, the US was forced to admit this purpose after the USSR produced the pilot and evidence.	1 <sup>st</sup> May 1960	The pilot, Gary Powers, was captured and convicted of espionage.
The Bay of Pigs Invasion		The Bay of Pigs Invasion was a failed military invasion of Cuba. The CIA-sponsored Brigade 2506 intended to overthrow the increasingly communist government of Fidel Castro, but were defeated after only 3 days.	17 <sup>th</sup> -20 <sup>th</sup> April 1961	The outcome made Castro a national hero.
Cuban Missile Crisis		The missile crisis was a 13-day confrontation between the USA and the USSR. The USA initiated ballistic missile deployment in Italy and Turkey, whilst the USSR deployed missiles in Cuba. It is often considered the point at which the Cold War came closest to all-out nuclear war. After tense negotiations, missiles were dismantled.	16 <sup>th</sup> – 28 <sup>th</sup> October 1962	Soviet missiles in Cuba were only 90km from Florida in the USA.
Non-Proliferation Treaty		The treaty on the non-proliferation of nuclear weapons, also known as the NPT, is an agreement to prevent the spread of nuclear weapons technology, and to promote peaceful use of nuclear energy. Both the US and the Soviet Union signed the treaty on 1 <sup>st</sup> July 1968, alongside other nuclear-armed states, reducing tensions.	1 <sup>st</sup> July 1968	Although it did not stop nuclear development, the NPT reduced US/ USSR tensions.
Fall of the Berlin Wall		The Berlin Wall had separated communist eastern section of Berlin Germany from west Berlin since 1961. However, the Soviet Union was beginning to collapse, and was struggling to hold onto East Germany. In November 1989, the Central Committee of East Germany opened up free movement across the wall. In doing so, one of the major symbols of the Cold War itself was abolished.	9 <sup>th</sup> November 1989	On October 3, 1990 Germany was officially reunified into a single country.

## Timeline of Major Events

1945 – Potsdam Conference leads to distrust between the USSR and USA	1945 – The Iron Curtain divides east from west.	1946 – Policy of containment leads to the Domino Theory.	1947 – The Truman Doctrine pledges to resist Communism.	1948 – Stalin mounts the Berlin blockade in East Germany.	1949 – USSR tests its first nuclear bomb and the arms race begins.	1950-53 – The Korean War.	1955 – The Vietnam War begins.	1957 – The Space Race begins (ends around 1975).	1960 – The U-2 plane incident – US pilot Gary Powers captured.	1961 – Berlin Wall erected.	1961 – The Bay of Pigs: botched invasion of Cuba.	1961 – Cuban Missile crisis brings the world close to nuclear war.	1969 – Strategic Arms Limitation Talks.	1979 – Soviets invade Afghanistan.	1989 – Fall of the Berlin Wall.	1991 – Collapse of USSR. Cold War ends.
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**Key terminology:** Internet, World Wide Web, Uniform Resource Locator, IP address, protocol, wide area network, local area network, data packets, packet switching, domain name, server, switch, hub, router, network interface card, ethernet, wi-fi, client-server network, peer-to-peer network, network topology, bus, ring & star topology, cloud computing, encryption, decryption, plaintext, cipher text.

## Year 9 Computer Networks

### THE INTERNET

**Internet** – Interconnected networks that provide the infrastructure for the world wide web.

**WWW** – collection of websites accessed via the Internet.

**URL** – Uniform Resource Locator, a website address

**IP address** – a unique string of characters that identifies each computer using the Internet

**Domain name** – the part of a network address that identifies it as belonging to a particular domain

**DNS** – Domain Name Server used to look up IP addresses from the domain name used.

**Data packets** – a unit of data made into a single package that travels along a given network path.

**Packet Switching** – data transmission when a message is broken into chunks which are sent independently, over whatever route is optimum for each packet, and reassembled at the destination.

### NETWORK CONNECTIVITY

**LAN** – Local Area Network over small geographical area.

**WAN** – Wide Area Network over large geographical area.

**Ethernet** – a system for connecting a number of computer systems to form a local area network.

**Wi-fi** – a wireless networking technology that uses radio waves to provide wireless high-speed Internet access.

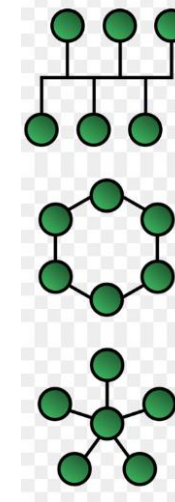
**Network interface card/controller (NIC)** – a computer hardware component that connects a computer to a computer network.

**Switch** – a device that forwards data packets directly to and between devices on a network.

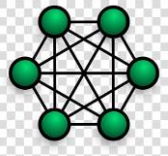
**Router** – a device that connects a network to another network and forwards data packets to the appropriate parts of a computer network

**Hub** – a device that links multiple computers and devices together.

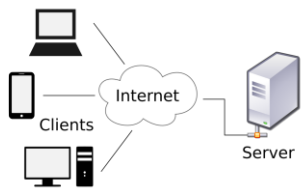
### NETWORK TOPOLOGIES



A **network topology** is the physical and logical arrangement of nodes and connections in a network. A **bus topology** connects all nodes on a central cable. A **ring topology** connects all of the nodes in a closed chain. A **star topology** makes use of a central server or switch and nodes are connected to that central server/switch directly. There is also a more modern topology called a **mesh topology**. This is where all nodes are connected directly to each other in a **full mesh** topology. Some connections may be missing with a **partial mesh**.



### CLIENT-SERVER NETWORKS



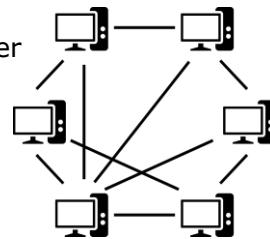
**Client machines** – a computer that gets information from another computer called a server on a network.

**Server/Central server** – a computer that provides information to other computers called "clients" on a network.

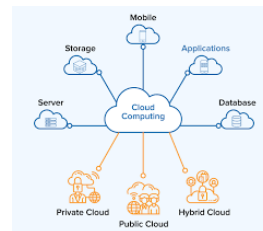
**Centralisation** – the management of a network from a central location. Centralisation makes it easier to carry out the following tasks:

- File management – data accessed in one location
- User management – control what people can see/do
- Hardware management – installation & maintenance
- Software management – installing/updating software

### PEER-TO-PEER NETWORKS



**Peer machines** – a computer that shares files and access to devices such as printers without requiring a separate server computer or server. Benefits include cheaper cost and easier to set up as doesn't need extra h/ware. Drawbacks include harder to manage each computer individually and data is duplicated between each peer machine.



**Cloud computing** – the practice of using a network of remote servers hosted on the internet to store, manage, and process data, rather than a local server or a personal computer.

### ENCRYPTION

**Plaintext** – the data being sent in its original form

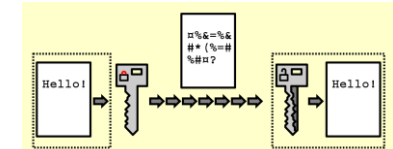
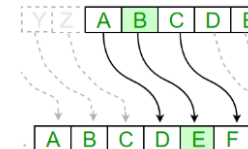
**Cyphertext** – the data once it has been encrypted

**Encryption** – the process of converting information or data into code to prevent unauthorised access

**Decryption** – the process of converting encrypted code back into its original readable format.

**Cesar Cipher** – the earliest known form of encryption where letters are replaced by moving forward 3 places

**Encryption key** – the private key needed by the recipient to decrypt the data back into its original format.



cryptii





**Key terminology:** facial recognition, fingerprint recognition, language processing, neural network, self-driving cars, sensors, embedded, camera, push button, rules, decisions, training data, machine learning, structured data, email, spam, ethics, algorithms, utilitarianism, morals, bias, bits, binary, fuzzy logic, intelligence, IQ, Turing test, Captcha, chatbot, virtual assistant, sentiment analysis.

## Year 9 Artificial Intelligence

### WHAT IS ARTIFICIAL INTELLIGENCE?



**Artificial intelligence (AI)** is the science of making machines that **can think like humans**. AI should recognise patterns, **make decisions** and judge like humans.



**Uses of AI** include:

- Security: Facial recognition, biometrics recognition
- Video games: AI player opposition
- Household devices: Robot vacuum cleaner
- Autonomous (self-driving) vehicles
- Chatbots & digital assistants
- Scientific research & healthcare



### AI & MACHINE LEARNING

**Facts** – a specific identifier for a person or object that helps to classify it. *"Humans have a nose, cats have whiskers".*

**Rules** – something which could be applied to assist further to classify a person or object. *"Humans might wear glasses, cats might be black and white".*

**Machine Learning** – where AI is trained with the use of vast amounts of data/models to learn and identify.

Uses of machine learning include:

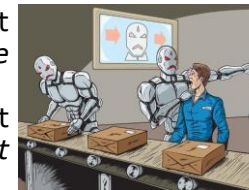
- Monitoring traffic patterns
- Identifying spam email
- Image & speech recognition

**Strengths–**

- Identifying patterns
- Carry out simple tasks
- Learns as it carries out tasks (adapts)



### THE USE OF AI & ETHICAL ISSUES



**Ethical issues** associated with the use of AI include:

- Loss or change of **Jobs**
- **Bias** being applied in algorithms
- **Decision-making** – which decision is right/wrong?
- **Legal issues** & misuse of AI
- **Disinformation** & deepfakes
- **Security**
- Lack of consent
- **Accountability** when the wrong decisions are made
- **Data Privacy** when AI accesses & shares our data



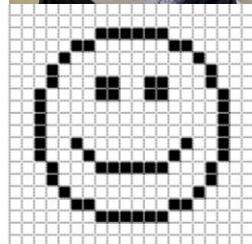
### IMAGE RECOGNITION USING AI



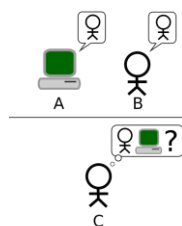
**Issues with facial recognition** include:

- Image that is not frontal view of face
- Changes made to appearance (make-up, contacts)
- Deception (wig, false beard)
- Other objects in the way (hands, sunglasses)

**Pixels** are used to represent images. A single block of colour. Each colour has a **binary** number to represent it. (0 = white, 1 = black). More **bits (binary digits)** used for more colours (e.g. 01 = grey, 101 = blue) More bits = higher **image resolution**.



### TURING TESTS & CHATBOTS



Measuring **IQ** – Both human & robot can perform well in IQ tests.

**The Turing test** – Human answers to questions, robot answers to questions. Can you tell whether the response is from the human or the robot?



**Captcha**– Captcha is a form of Turing test to identify a human from a web bot. Human have to identify what AI would struggle with due to the shape changes.

**Chatbots** – virtual assistants responding to typed or spoken commands/queries.

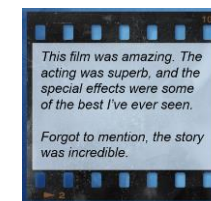
### AI ALGORITHMS & REVIEWS



**Sentiment analysis** - the process of analyzing digital text to determine if the emotional tone of the message is positive, negative, or neutral.

AI algorithms are used to detect the **positive & negative words** used in reviews. The AI will determine how positive or negative the review is based on the word having a rating...

...some reviews however can be fake!





**Key terminology:** Integrated development environment, IDLE, variable, string, assignment statement, data type, casting, integer, float/real, round, BIDMAS, selection, iteration, condition-controlled, while, count-controlled, for, loop, syntax error, logic error, bug, debug, list, array, index, procedure, function, call, argument, parameter, return value, modular program, dry run.

## Year 9 Python Next Steps

### PYTHON BASICS RECAP

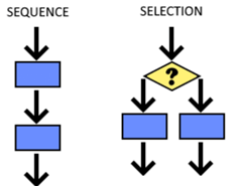
**IDLE** – the IDE used by Python to create programs.

**Script mode** – where you put a bunch of commands into a file (script) and then tell Python to run the file.

**Interactive mode** – where you run and interact with the program whilst it is running.

**Variable** – a location in memory in which you can temporarily store a value. This value may change whilst the program is running.

**String** – these are surrounded by either single quotation marks, or double quotation marks.



**Sequence** – the correct order of instructions needed to perform the task successfully.

**Selection** – a decision or question used to select one part of a program or the other.

**Data casting** – setting the format to be used for data that is being input or output within the program.

```
firstname = str(firstname)
```

**Integer** – data type for whole numbers.

```
hoursperweek = int(hourspernight) * 7
```

**Float/real** – data type to store decimal numbers.

```
hourspermonth = float(hoursperweek) * 4.35
```

**Boolean** – data type for TRUE or FALSE.

```
play_again = true
```

**ROUND** – function used to round up or down.

```
round(hoursperyear)
```

### ITERATION WITH FOR LOOPS

**Iteration** – repeating or looping while a specific condition is met.

```
for x in range(6):  
    print(x)
```

**For loops** – a count-controlled loop used when you know how many times you want something to loop.

A for loop can be used to:

- print out a list of numbers
- print out the letters in a word
- print out the values stored in a list

```
fruits = ["apple", "banana", "cherry"]  
for x in fruits:  
    print(x)
```

```
adj = ["red", "big", "tasty"]  
fruits = ["apple", "banana", "cherry"]  
  
for x in adj:  
    for y in fruits:  
        print(x, y)
```

**Nested loops** – you can also make use of a nested loop which is a loop within a loop. You can also include an IF statement in a loop.

### LISTS IN PYTHON

**List** – a method of storing multiple data values as one set in Python.

```
thislist = ["apple", "banana", "cherry"]  
print(thislist)
```

**Index** – the position of the data value within the list. Index positions start at 0 in Python.

```
thislist = ["apple", "banana", "cherry"]  
print(thislist[1])
```

Various actions can be performed on lists such as searching for a specific value in a list...

```
thislist = ["apple", "banana", "cherry"]  
if "apple" in thislist:  
    print("Yes, 'apple' is in the fruits list")
```

### FUNCTIONS 1: PROCEDURES

**Procedure** – a procedure is a block of code which only runs when it is called in a program. A procedure **does not return a value** for use within the main program.

**Call** – using the name of the procedure in the main program.

```
def my_function():  
    print("Hello from a function")
```

```
my_function()
```

w3 schools



### FUNCTIONS 2: FUNCTIONS

**Function** – a function is a modular program similar to a procedure but this **can return a value**.

**Parameter** – the name of the variable to be used within the function when defined.

```
def my_function(fname):  
    print(fname + " Refsnes")
```

**Argument** – the value that is sent to the function when it is called.

```
def my_function(x):  
    return 5 * x
```

**Return value** – the result of any operation within the function returned for use within the main program.





**Key terminology:** vector graphics, bitmap graphics, raster, properties, scalable, analogous, complementary and monochromatic colour schemes, pixel, binary, bit, byte, ppi/dpi, audience, purpose, font, gradient fill effects, saturation, brightness, contrast, resolution, layer, layer masks, layer styles, white space, export, file format, transparency, compression.

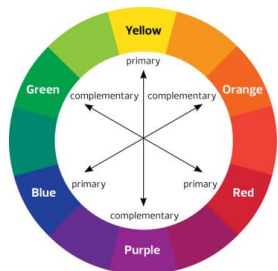
## Year 9 Creating Digital Graphics

### VECTOR-BASED GRAPHICS

**Vector graphics** – visual images are created directly from geometric shapes using mathematical co-ordinates.

**Properties** – characteristics such as width, height, fill, stroke(outline).

**Scalability** – ability to be made bigger without any loss of quality due to redrawing the shape using an algorithm. Uses of vectors include logo design and clip art images.



#### Colour schemes:

**Analogous** – colours that are next to each other on colour wheel.

**Complementary** – sometimes referred to opposite colours.

**Monochromatic** – all the different shades of a single colour.

### BITMAP-BASED GRAPHICS

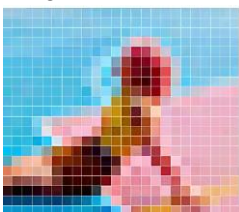
**Bitmap graphics** – an image formed from rows of different colored pixels. Also known as Raster graphics.

**Pixel** – a 'picture element' that is the smallest element of a screen display.

**Binary** – number system used by computers to represent different forms of data.

**Bit** – a single binary digit that is either '0' or '1'.

**Byte** – made of 8 bits or binary numbers such as 0110 1101.



**Image resolution** – the density of pixels in an image that determine the quality of the image. Measured in PPI – pixels per inch.

**Image dimensions** – the width & height of an image in mm/cm or pixels.

### CONVEYING MEANING

**Fonts** – these can be either modern or traditional. Fonts can be serif or sans-serif. The font used may also be formal or informal. Font size can be used to signify importance depending on the sizes used. Capitals can also be used to emphasise.



**Colour** – Colours can be grouped such as warm or cool, light or dark colours. Specific colours can be used to represent different moods and emotions. Colour can be used to be bold, contrasting colours for clarity.

**Images** – the images used are generally to make a specific link to the theme or nature of the product.

### CREATING A DIGITAL GRAPHIC

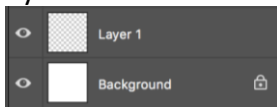
#### Selection tools

- Lasso
- Object selection
- Quick selection
- Marquee rectangle
- Marquee ellipse
- Magic wand

**Selection tools** – used to allow the user to select a part of the image including magic wand, quick selection, lasso, magnetic lasso, rectangular marquee tool etc.

**Transformation tools** – used to allow users to modify images or objects to fit their creative needs such as scale, rotate, distort, flip, free transform etc.

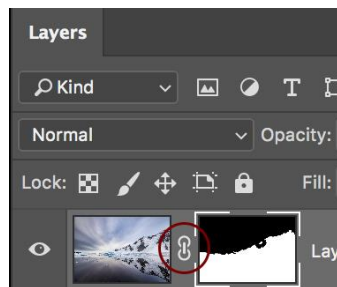
**Layers** – used to allow the user to organise the images so that they can work on separately without mixing them up.



### ADDING EFFECTS & ENHANCEMENTS

**Hue & saturation** – Hue relates to the colour being applied. Saturation defines the brilliance and intensity of a colour.

**Brightness & contrast** – Brightness increases the overall lightness of the image while contrast adjusts the difference between the darkest and lightest colours.



**Layer Styles** – Layer styles let you quickly apply effects to an entire layer. These can include outer glow and drop shadow.

**Layer Masks** – A layer mask conceals or reveals different elements of an image by allowing you to edit the individual layers of a composition.

### EXPORTING FOR DIFFERENT PURPOSES

**Export** – to save an image file in a common format that can be used outside of the editing software.

**Lossy compression** – compression that reduces the size of the file by permanently removing parts of data.

**Lossless compression** – compression that reduces the size of the file without permanently removing data which can be restored back to its original form.

**PSD** – Photoshop Document for use within the editing s/w.

**TIF** – Tagged Image Format, uncompressed file format suitable for high quality printing.

**PNG** – Portable Network Graphics – uses lossless compression and preserves transparency, good for web.

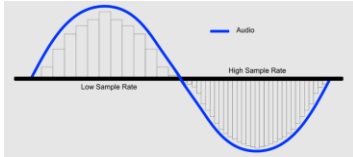
**JPEG** – Joint Photographic Experts Group – uses lossy compression and is suitable for digital images.



**Key terminology:** trim, effects, noise, pitch, envelope, ducking, import, export, mono, stereo, audio track, time shift, sampling, sample rate, frequency, amplitude, wavelength, sound wave, analogue, digital, bitrate/bit depth, diegetic and non-diegetic sound, foley artist, sound editor, audience, purpose, export, file format, compression, lossy/lossless compression.

## Year 9 Audio Editing with Audacity

### DIGITISING SOUND



**Analogue sound** – sound with a continuously varying signal as represented with soundwaves.

**Sampling** – the process of transforming an analogue musical / audio source into a digital file.

**Sample Rate / Frequency** – the number of samples per second taken from an analogue signal to make the digital audio file.

**Bit Rate** – the number of bits used to represent one second of audio. It's calculated by multiplying the bit depth by the sample rate.

**Amplitude** – the measure of the height of the wave. The amplitude of a sound wave can also be defined as the loudness of the audio.

### CREATING AN AUDIO ADVERT USING AUDACITY

**Import** – for opening audio files into the same Audacity project as separate audio tracks.

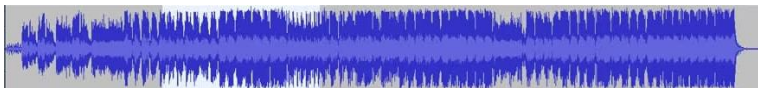
**Selection** – to select part of a track in the soundwave.

**Trim** – to remove parts of the track that aren't selected.

**Effects** – built-in features that allow you to change or enhance the audio track.

**Noise** – the residual low-level sound (four major types: hiss, rumble, crackle & hum) that is heard when quiet.

**Pitch** – the specific position of a sound within a set of notes. Sounds are considered either higher or lower in pitch depending upon the frequency of vibration in the sound that is created by a wave.



### JOB IN THE SOUND INDUSTRY



**Diegetic sound** – any sound that originates from the world of a film. If the characters can hear it, it's diegetic.

**Non-Diegetic sound** – any type of sound that does not exist within the world of the film. It's the type of sound that characters in a film are not able to hear but we can.

**Foley artist** – a person who uses objects to re-create sounds for film, video, and other media in post-production to enhance the audio quality.

**Sound editor** – a creative professional responsible for selecting and assembling sound recordings in preparation for the final sound mixing or mastering.

### CREATING AN AUDIO ADVERT USING AUDACITY

**Mono** – single-channel audio where all audio is mixed into one signal.

**Stereo** – audio that uses two or more channels to create a sense of depth, direction, and space. Each channel can have different sounds or levels & different speakers.

**Time shift tool** – used to move audio clips on a track.

**Envelope tool** – used to create and manipulate "control points" at various points in the track to determine the volume changes over time.

**Ducking** – a process whereby the audio signal is "ducked" down when another sound goes beyond a particular threshold such as b/g music for voiceovers.

**Export** – to save an audio file in a common format that can be used outside of the editing software.

### ANALYSING / PLANNING RADIO ADVERTS

**Audience** – the intended target of the radio advert.

**Purpose** – the reason why the radio advert has been created (to inform, promote, advertise etc....).

**Assets** – individual digital files used to form part of the intended final product.

**Source** – the original location of where the asset file has come from.



**Copyright** – a law that protects an authors original work from being used, distributed or copied without their permission.

**Creative Commons** – a set of public copyright licenses that enable the free distribution of an otherwise copyrighted "work but usually has specified conditions by the owner of the work.

### COMPRESSION & FILE FORMATS

**Lossy compression** – a method of compression that reduces the size of the file by permanently removing parts of the data.

**Lossless compression** – a method of compression that reduces the size of the file without permanently removing data which can be restored back to its original form.

**MP3** – a common audio file format used for music tracks that uses lossy compression.

**WAV** – a common audio file format used for sound effects that isn't usually compressed.

**WMA** – Windows Media Audio used for Windows.

**AAC** – Advanced Audio Coding used for Apple.



MUSIC





## Hinduism: Key terms

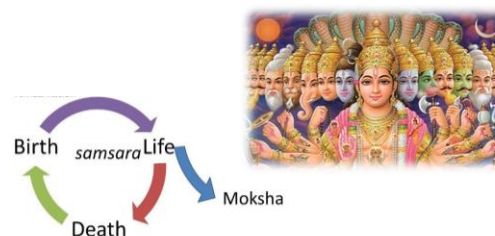
- Brahman** – The ultimate reality / the supreme being  
**Deities** – A divine being, a god or goddess that is part of the supreme being  
**Atman** – the soul  
**Samsara** – the cycle of birth, life, death and re-birth  
**Reincarnation** – when the soul is re-born into another living body  
**Moksha** – the escape from samsara  
**Caste System** – a class structure that you are born into, based on your previous life's Karma.  
**Karma** – cause and effect – if you do good deeds then good will come to you

## One God many forms

- **Brahma** – The Creator
- **Vishnu** – The Preserver
- **Shiva** – The Destroyer and Re-creator
- **Ganesh** – The remover of difficulties
- **Lakshmi** – the goddess of wealth
- **Saraswati** – The goddess of learning
- **Agni** – God of fire



- **Aum/Om Symbol represents the Trimurti (three deities of creation)** Brahma, Vishnu and Shiva
- Aum is made up of three Sanskrit letters, *aa*, *au* and *ma* which, when combined, make the sound *Aum* or *Om*. It is the most important symbol in Hinduism, it occurs at the beginning of prayer to most deities and is said to be the first sound heard (link to creation story)
- Also represents reincarnation as life has to be destroyed for the soul to be reborn.
- It can be used to represent the supreme being Brahman as there are no images



## Goal of Hindus

Many Hindus believe that the aim for all souls should be to stop being reborn and to become one with the Supreme Spirit. This is called **Moksha**

Hindus have two main 'goals' in life;  
 1. To move up the Caste System  
 2. To achieve Moksha

They can do this by achieving good karma and by following the dharma (rules) of their caste

# Year 9 Autumn Topic 1: Hinduism

## Caste System

- The caste system divides Hindus into groups based on their karma (work/good deeds) and dharma (duty)
- It is more than 3,000 years old.
- A person will be born into caste depending on their past karma
- They will remain in the same caste their whole life until they are reborn into their new life

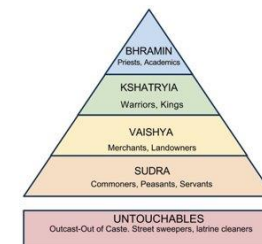
## The Caste system should remain illegal

### Agree

- Discriminates
- Does not allow people to marry who they like which is unfair
- It is not projecting India to be the modern society that it wants to be
- Does not allow for social mobility

### Disagree

- Part of religious teachings i.e. to move up caste
- People still follow it anyway
- It is not unfair as it is based on your karma from previous life
- It is at least 3,000 years old so a huge part of Hindu culture



Hindu Stories	
The Creation Story	Ramayana
<ul style="list-style-type: none"> <li>• This is not the first world nor is it the last</li> <li>• There is a vast ocean – on it is Ananta and on Ananta is Vishnu</li> <li>• Aum sound wakes Vishnu</li> <li>• A lotus flower comes from Vishnu's naval-from this comes Brahma</li> <li>• Brahma creates by using different parts of his body</li> <li>• Brahmas day is four thousand million of our years</li> <li>• At the end of Brahmas life, Shiva destroys the universe</li> <li>• The process is then repeated....</li> </ul>	<ul style="list-style-type: none"> <li>• Rama and Sita exiled to the forest. Sita sees golden deer and Rama tries to find it for her.</li> <li>• Lakshmana draws protecting circle around Sita, she steps out of it to give drink to man and is captured by Ravana.</li> <li>• Rama goes looking for Sita and enlists the help of deities who are in animal bodies including Hanuman who finds Sita imprisoned in Lanka.</li> <li>• Rama and his army make a bridge out of stones to Lanka so that they can save Sita.</li> <li>• Big battle between Rama and Ravana's armies. Rama shoots burning arrow towards Ravana and kills him.</li> <li>• Great celebrations as Rama and Sita come home but Sita has to walk through ring of fire to show loyalty.</li> </ul>



## The Existence of God

**Theist** – Someone who believes in the existence of God/Gods

**Atheist** – Someone who does not believe in the existence of God/Gods

**Agnostic** – Someone who is unsure whether or not a God/Gods exist

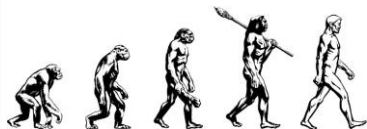
**Transcendent:** God is beyond/outside the material world.

**Immanent:** God is involved in the world, he is not separate from it. God can act in the course of history.

**Theistic evolutionary:** A Belief that God is the Start point for the Big Bang and Evolution.

### Creation

- **Big bang:** Put simply, the theory states that around 14 billion years ago all matter and energy in the universe was at a point of infinite density and temperature. It then expanded rapidly. Eventually stars, galaxies and planets formed. This expansion was the beginning of time and continues to this day.
- **Evolution:** In 1859 Charles Darwin published a book called On the Origin of Species. He put forward the theory that all living creatures that exist today, including human beings, have evolved from primitive life forms over a period of millions of years.
- **First Cause Argument** :The first cause argument is based around **cause and effect**. The idea is that everything that exists has something that caused it, there is nothing in our world that came from nothing.
- **Religious creation stories:** Christians believe that God created the world in 7 days as recorded in Genesis. Islam is very clear about the belief that Allah was responsible for the creation of the universe.
- The **Design Theory**:It points to evidence that suggests our world works well - ie that it was **designed in a specific way**. The argument follows that if it was designed like this, then someone or something must have designed it.



### Evil and Suffering

Various types of evil and suffering are evident in the world. This can cause problems for many religious people as they believe in a loving, powerful and all-knowing God.

Two types of evil and suffering

1. Moral evil and suffering: caused by the actions of humans e.g. Murder, War
2. Natural evil and suffering: caused by nature e.g. earthquakes



### Miracles

A miracle is a seemingly impossible event, usually good, that cannot be explained by natural or scientific laws, and is thought to be the action of God

Example: Louis Zamperini, an Olympic runner who as an airman during World War II crashed into the Pacific, was listed as dead and then spent 47 days adrift in a life raft before being captured by the Japanese and enduring a harsh imprisonment

## Year 9 Spring

## Topic 2: The Existence of God

### 'God exists'

Agree	Disagree
<ul style="list-style-type: none"><li>• Religious creation story</li><li>• Religious texts tell of God – this must come from somewhere</li><li>• Millions believe – they cannot all be wrong</li><li>• Miracles</li><li>• Near death experiences</li><li>• People have seen/spoken to God</li></ul>	<ul style="list-style-type: none"><li>• Science – big bang created the world</li><li>• No proof – no one has seen him</li><li>• Suffering exists – why would he allow suffering?</li><li>• Evil exists in the world</li><li>• Lack of evidence that God exists</li><li>• Darwin's theory of evolution</li><li>• Impossible to prove the stories in religious texts are real</li></ul>

### Rwandan Genocide

**Genocide:** The definition contained in Article II of the UN's Genocide Convention describes genocide as a crime committed with the intent to destroy a national, ethnic, racial or religious group, in whole or in part.

**Rwanda:** a small landlocked country in east-central Africa

### 100 days of slaughter

Between 6<sup>th</sup> April and July 1994 between 800,000 and 1,000,000 moderate Hutus and Tutsis were killed in Rwanda; Men, women and children. Most of the killings were carried out in 'public' and with machetes



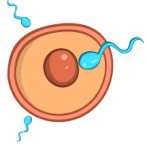


## Morality

**Morality:** the belief that some behavior is right and acceptable and that other behavior is wrong.

**Absolute morality:** You always have the same moral outlook, regardless of the situation.

**Relative morality:** Each situation is different and you act accordingly to get the better outcome.



### When does life begin?

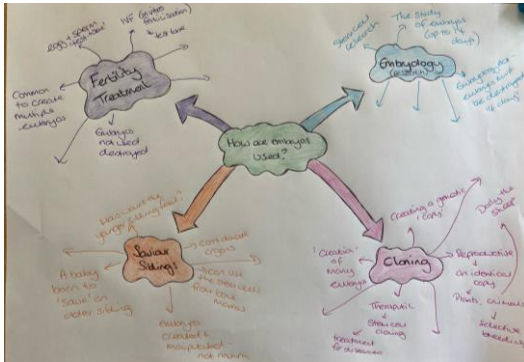
- Birth
- Conception
- First heart beat
- 120 days-ensoulment, when a baby receives it's soul from Allah (Muslims)
- Viability-24 weeks of pregnancy-if a baby is born then it can survive

### Why does it matter?

Depending on when you believe life begins will have an impact on whether you agree or disagree with using embryos or your opinion on whether or not abortion should be allowed



### The use of embryos



## Abortion

Abortion is **the deliberate ending of a pregnancy**

### The Law:

- It must be before 24 weeks (except in exceptional circumstance)
- The pregnancy threatens the mother's life
- It poses a risk to the mother's physical or mental health
- An additional child could pose a risk to the physical or mental health of any children in the existing family
- There is serious risk that the child will be born with severe physical or mental disabilities

### Pro Life

- Arguments that oppose abortion-usually under any circumstances.
- They support the foetus' right to life

### Pro choice

- Arguments that defend a woman's right to choose what happens. This may mean supporting her right to an abortion if that is what she chooses



## Year 9 Summer

## Topic 3: Matters of Life and Death

### Euthanasia

Painless killing of a patient suffering from an incurable and painful disease or in an irreversible coma

#### The Law:

All forms of euthanasia are currently **illegal in the UK** and treated as murder or manslaughter (it carries a minimum custodial sentence of 14 years).

#### For

It ends suffering  
It is a humane death  
No one should suffer with a poor quality of life  
Merciful release of humans from pain  
Death with dignity

#### Against

It's a form of murder  
We can't 'Play God' – we have no right to decide  
Medicine is always getting better  
Life is a gift  
We should care for the sick, not end their lives

### Death Penalty

**Death penalty:** capital punishment; a form of punishment in which a prisoner is put to death for crimes committed

The death penalty was abolished in the UK in 1969; several campaigns have been carried out to try to have it reintroduced but all have failed. According to the latest figures from Amnesty International 55 countries still have the death penalty.

#### For

An 'eye for an eye'  
Ultimate deterrent  
Justice for the victims and their families  
Life sentences do not mean life....murderers walk free after a few years  
Total protection of society

#### Against

Two wrongs don't make a right  
It is contradiction to condemn murder and then execute a murderer  
Innocent people can be executed  
It is inhumane  
All life is sacred  
Should be given a chance to reform